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SURGICAL TREATMENT OF SUPPURATIVE DISEASE  
OF THE APPENDAGES.\*

BY WILLIAM M. POLK, M. D., LL. D., NEW YORK.

When I accepted your invitation to speak upon this subject I knew I was thrusting my head into the jaws of the lion, but I reflected that good to our branch of surgery might come from the mangling ; therefore, with something akin to the spirit which leads our guild to brave even the terrors of war and pestilence that light may be thrown upon the questions which vex us, I came and am here.

With due deference to your invitation, it seems absurd that any one should come here to talk upon a subject with which each and all of you are more than familiar, especially when, as in this case, the speaker has nothing new to offer. I can only imagine that your president wished the subject discussed in order that the chaff which it contains might be separated, cast out, winnowed, as it were, in the hot and searching blasts characteristic of this august body. Therefore, committing myself to kind Providence, I launch upon the stormy question.

By suppurative disease I suppose you mean pyosalpinx and ovarian abscesses, with their accompanying pockets of pus when such exist. Granting this, let me broaden the question a little to include certain inflammations of the uterus, which are characterized by endometric reactions and results which bring them close to if not within

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\* Read, by invitation, before the Philadelphia Obstetrical Society, Dec. 5, 1895.

the strict meaning of the word "suppuration"—namely, gonorrhœal, tubercular, and septic endometritis and metritis. I believe at least one of these lies back of every collection of pus in tube or ovary.

Assuming that the gonorrhœal or septic manifestation in the uterus is active, there is small doubt as to the ultimate implication of the appendages, and in the case of sepsis, if it be in a recently pregnant uterus, of more or less of the peritonæum as well. If resolution in these conditions could be relied upon there would be little if any need for interference; but it can not be relied upon, and as we know that its failure means a practical destruction of the appendages, one or both, with all that is implied in this, or perhaps death to the patient from peritonitis or sepsis, shall we stand idly by and await the unfavorable issue?

I think not. We can not interfere too soon in all such cases. Prompt provision for the escape of the products of such inflammation, from the uterus outward, must be made; and in the recently pregnant uterus measures must be taken to remove decidual tissue and clots, if such be present. We will not affront you by suggesting how this can be done; but let me say that, while you freely pack the uterus with sterile cheese cloth, doing this daily if free drainage demands it, be chary of the curette. Never employ it in acute gonorrhœal infection, and in septic infections use it only when the finger fails to clear the wall of adherent decidual tissue. But it may be, before such care can be given appendages and peritonæum have been involved. If it be gonorrhœal, one can rely upon the disorder remaining within the pelvis, or if it extend, that the extension will be upon the face of the peritonæum (peritonitis). If it be septic, particularly if it be sepsis in a recently pregnant uterus, it may have similar limitations; but, again, it may give us general infection by way of the lymphatic and blood-vessels.

Permit me to exclude all cases in which the general infection of sepsis masters the case, such, for instance, as examples of sapræmia, septicæmia, or pyæmia. For, I take it, if we are to make progress in our discussion to-night, we must keep to the lines which lead to localized or encysted suppuration. It is true that even these conditions may be the forerunners of a general infection; but if such be the result, it is through a slower sepsis or through a general peritonitis. Let us, then, look carefully upon these local or pelvic results.

Assuming that the appendages and peritonæum have become involved, we get speedy information through the physical evidences, and then comes the question of appropriate treatment. Shall the

affected area be left unmolested by surgical interference, or shall we attempt something more than hot douches, catharsis, and rest? The answer depends somewhat upon the extent and degree of implication, as indicated by signs and general symptoms. Let us omit slight implication, as shown by lack of symptoms and of signs.

The possibilities of the situation turn upon the probability of permanent loss of function to the appendages, even should the disease go no further, and loss of life should it involve the general peritoneal surface. Evidently the latter danger is the more pressing, but both are serious enough to warrant something more than general or surface measures. If the uterus has been already cleansed and drainage provided for, it remains for us to get nearer to the new focus of inflammation. Analogy teaches that the quicker we get to a suppurating center, and, by giving vent, free the tissues from the destructive influence of the pathogenic germs and fluids there at work, the better for the involved area. Now it appears that in the vast majority of these cases the affected area includes the *cul-de-sac* of Douglas, toward which the process generally gravitates; therefore if we enter this *cul-de-sac* and make a free opening thence outward into the vagina, we will best meet the immediate danger. By "immediate" is meant the danger of an inflammation thus pent up in a serous sac, extending to the whole of this sac before Nature can muster strength and by incapsulation keep it within narrow limits. Relieve the pressure in the direction of the general cavity, and Nature's barrier, lymph exudate, even though scant, can best perform its part of this duty.

The proposition likewise holds good against the danger threatening the integrity of the appendages. To leave them surrounded by an active inflammatory process is to court their disablement, if not destruction. Incision, therefore, best meets the double danger. To be effective, this incision must be free, a wide opening must be made in the *cul-de-sac*, extending from the uterus to the bottom of the sac, and in certain cases even increased by lateral cuts. This opening not only gives free vent to peritoneal fluids, but it permits us to palpate the under surface of the affected appendage or appendages, so that, if best, they too may be incised or aspirated.

The tube, under the circumstances portrayed, is the organ which contains the encysted pus, or rather muco-pus; and while incision or aspiration may not in all these cases prevent its destruction, yet, aided by peritoneal drainage, it will certainly tend in that direction far more than any other process at our command.

It need not be argued that such openings into the *cul-de-sac* would

be infected from the uterus, because prior to such openings the uterus will have been cleansed and properly packed ; then, with a loose gauze drain in the *cul-de-sac* and one similar in the vagina, and these placed in contact with a fitting dressing, one can feel that a logical piece of surgery has been well completed.

So far we have dealt with conditions leading up to suppuration rather than with suppuration itself. Now let us consider this latter. The disease, whatever its origin, has passed through its acute stage, or, as in the case of tuberculosis, has run its primary subacute or chronic course, and is within the suppurative stage. A variety of conditions may present themselves in consequence, but two types will answer the purpose of this gathering. The first presents to us a tube with walls more or less thickened, having an ampulla closed and more or less distended with a fluid to all intents and purposes pus. The adjacent ovary is infiltrated, enlarged, softened, and may or may not contain pus. The peritonæum contains only solid exudate lymph. We will assume that the physical evidences point to unilateral rather than double implication. The uterus being in a state of infiltration, as a rule, and endometritis and more or less metritis being generally associated, curettage with subsequent packing should be the first step. This prepares the way for the preservation of the sound appendage, should such exist, and if not, does no harm beyond some slight delay in passing to the second step.

This step comprises vertical posterior vaginal section, with digital examination of the supposed sound appendage. Finding it sound, the next step relates to the removal of the diseased appendage. This can be done through the opening already obtained, or, if preferred, through one between the uterus and bladder, after the method of Dührssen—*anterior colpotomy*. What must our course be, however, when we fail to find a sound appendage—when, spite of the seemingly favorable evidences of careful physical examination, each is found too much diseased to permit retention ? Or what shall we do, even though one appendage be perfect in all particulars, and yet we find tubercle bacilli in the scrapings from the uterus, obtained for diagnostic purposes by the preliminary use of the curette ? Removal of the uterus and appendages by vaginal hysterotomy must be the answer. It is the only logical course, the patient's general condition permitting—a proviso common to major operations in general, including salpingotomy and oöphorectomy by means of abdominal section.

The second type of suppurative disease of the appendages is that in which the pus is found mainly in the ovary (ovarian abscess) and

perhaps in peritoneal pockets ; not that the tube is free, for it too contains pus and is markedly infiltrated ; but the order of prominence seems to be—ovary, peritonæum, tube, the condition being, no doubt, the successor of the first type, with an apparent reversal of conditions so far as purulent foci go.

The condition is more pronounced on one side than the other ; in fact, one side may be practically free from suppuration, and yet inflammation may have been so intense and so widespread, in one way or another, both are effectually destroyed.

Like type No. 1, this one will have occasionally its chief manifestation (as after labor at term) at the pelvic brim, or well up in the pelvis, and will then tend to evacuation through the abdominal wall (iliac region, usually) ; but with both types the usual direction is downward into the vagina or rectum.

Patients who are the victims of this last type come before us in two general classes : First class with the suppuration in aggressive progress locally, and marked by decided constitutional symptoms ; the tissues and organs round about the pus foci are infiltrated and softened ; condition of patient unfavorable for major operation. Second class, the suppuration quiescent, the pus encysted, constitutional reaction slight, perhaps almost nil ; now and then exacerbations marked by local constitutional reaction more or less aggressive ; the tissues and organs adjacent to the foci are thickened and indurated in proportion to the duration of the process ; new organized tissue is a striking feature of the periphery, particularly in the direction of the free peritoneal cavity. The condition of the patient is favorable for major operation.

The two classes must be dealt with on different lines. The first calls primarily for nothing beyond free evacuation of the pus, the direction and manner of this evacuation depending upon the direction the pus appears to be taking. If downward, then through the vagina ; if upward, then through the abdominal wall. When pus works its way downward in these cases, a free opening can be made from the vagina without fear of the free peritoneal cavity, because a good wall of adherent viscera above the collection of pus can be relied upon. The device discussed in the American Gynæcological Society in 1887 is helpful but hardly necessary.

How is it when the direction of advance is upward ? Forbidding an attack through the vagina in the large majority of such cases, the focus of pus hugs one or the other side of the pelvic wall and advances along the parietal peritonæum into one or the other iliac fossa. Such



being the condition, the line of the evacuation should be through an opening which, beginning just above and parallel to Poupart's ligament, extends thence beneath the peritonæum, upon the face of the psoas and iliacus muscles, to a point within the area of attachment of the focus of pus. But sometimes this focus pushes directly for the abdominal wall through the hypogastric region, aiming apparently for some point not distant from the median line. Its advance is usually covered by enough peritonitis to give abundant adhesions quite up to the abdominal wall. If this be so, direct evacuation is an easy and safe process. It is only necessary to cut down upon the most prominent point, carefully separate the adherent viscera up to the foci of the pus sac, empty it by aspiration, then open it freely, cleanse the cavity, and pack it with gauze.

Let us suppose, however, that the pus sac has no such extensive outlying system of adhesions, but, on the contrary, has an inch or more of free peritoneal cavity between it and the abdominal wall. Shall we endeavor to drag it up to face the wall, or shall we endeavor to create a system of adhesions between the sac and the wall, thus imitating Nature? Most surely, the latter is the proper course; therefore, open down to the sac, expose its surface freely, then pack gauze from this surface to and through the abdominal incision; leave it forty-eight hours, then remove. At this sitting empty the sac, open it freely, cleanse and drain it along the safe-walled passage your gauze has made for you.

This precaution presupposes the patient's state will warrant a delay of from twenty-four to forty-eight hours. Should it not, then the case must take the chances of enucleation—enucleation of the sacculated tube and ovary; and should peritoneal loculi exist, evacuation of them with subsequent open drainage.

To recapitulate the rule in this case: Tax your patient no more than is necessary to give free and safe vent to the pus. Postpone radical operation.

How shall we deal with the second class, to which, as you have just seen, the first may in time be added?

I presume that most operators at this date accept the proposition that hysterotomy with enucleation of the purulent tubes and ovaries (pus sacs) must be done. They may differ as to the propriety of hysterotomy in lesser lesions, but not as to its propriety here. And yet there is a difference: it relates to the direction of operation. Shall it be by vaginal or abdominal section?

After no small experience in both, my preference is for the vaginal



route. Since my first case at Bellevue Hospital, February 11, 1892, this partiality has grown. Operating first one way and then the other, the partiality has ended in conviction, so that now I rarely use the abdominal route, even including cases requiring the double approach.

My conviction also, speaking of the subject generally, is that vaginal section and hysterotomy is in the interests of the patient, while abdominal section is in the interest of the operator. The operator has an easier route, a better opportunity for demonstration, and, where such things are considered, a better field for theatric display, while with the vaginal route the patient has a smoother and more perfect result. It demands deep conviction to forego the delights of the Trendelenburg posture in such cases; and, on the other hand, it demands a patience and a degree of physical endurance to perfect ourselves in vaginal work which many will find it hard to give.

Let us consider the difficulties. The use of the cautery removes the annoying hæmorrhage of the vaginal wall. The close hugging of the uterus with the knife or cautery which is permissible (unlike the similar operation in uterine cancer) makes it easy to control the uterine vessels, and that, too, without fear of the ureters or bladder, so different from the operation in cancer. The opening secured by the removal of the uterus makes easy the withdrawal of the appendages when they are free or moderately adherent; and even when they are widely and firmly fixed, if we have a roomy, shallow pelvis, with wide inferior strait, the task, while serious, is not very difficult. But there is a condition, especially when associated with a male pelvis in a stout woman, which is more trying than any I have ever encountered. An old suppurative process, such, for instance, as we may find in ovarian abscess just considered; both sets of appendages involved; the mass—which is composed of uterus and appendages, the enlargement being in the latter—nearly, if not quite, fills the pelvis; the rectum, sigmoid, perhaps cæcum and appendix, are a part of the mass, being, together with the omentum and perhaps a coil or two of the small intestine, attached to it by adhesions so well formed, so strong, as to require close inspection to determine which is the viscus and which the new tissue. We all know such cases well, and, with the best exposure that abdominal section and the Trendelenburg can give us, we always approach them with anxiety.

How can we master such cases through the vagina? No special difficulty occurs until we have removed the uterus and are beginning enucleation of the pus sacs (tubes and ovaries). Let me say just here that in all such cases it is a good precaution to have a guide in

the rectum, such as a soft rectal bougie. This should be introduced carefully, with the patient either on the side or in the knee-chest position, and the bougie should be long enough to traverse the entire rectum. In the enucleation which is now to follow, your point of departure must be the stump of the tube and the ovarian ligament just cut from the corneæ of the uterus, working from this point first for one side then the other, dragging down tissue with the forceps, examining it, studying it, for there is no such need for haste as prevails with abdominal section; you work your way onward until the task is complete. In many cases you will succeed in shelling out the appendages, leaving the envelope of new tissue intact; but sometimes you will tear an intestine. If the rent be small and below—that is, within—the wall of new tissue, so that there is no chance for communication with the free peritoneal cavity (this can be determined by searching over the walls of the excavation), the rent can be left to care for itself. Merely stretch the sphincter to permit intestinal gas to escape. If it be large, yet still cut off from the general cavity of the peritonæum, close it as far as you can, and observe the above precaution relating to the sphincter. But, large or small, if such a rent is not separated from the general peritoneal cavity by Nature's barrier, which may have been broken up more or less during the manipulation, it must be effectually closed. If the rent intestine can be brought down to the opening in the vaginal roof, this closure can be effected from below, and, if the pelvis be roomy, one might even do it higher up. But if it can not be done from below, it must be done from above, and through-drainage with gauze packing provided for.

We admit, then, that there are conditions demanding abdomino-vaginal section. This raises the question, Why not adopt this as the operation in all doubtful cases? This is for discussion.

Suppuration of the appendages sometimes presents itself to us as a complication of other conditions which, taken as a whole, modify our methods.

As a complication of pregnancy, for instance, and in conjunction with fibroids and appendicitis, all of these conditions are important enough to demand a consideration distinct from that of the simpler questions presented here. I shall therefore avoid them, and end by alluding only to the few which are so closely allied to the subject of this paper as to warrant our attention.

We have two operations which, valuable as they were in their day, and perhaps even now in a limited number of cases, are yet incom-

plete, in that they are liable to leave foci of suppuration behind. I allude to what is known as the Tait operation, more particularly in double suppuration of the appendages, and the form of incomplete hysterectomy which leaves a good part of the organ behind—the cervix. In the former, aside from the suppurating stumps we formerly so often met with, the body of the organ is an offense, and in all such cases should follow the appendages. The same may be said of the cervix, which, contaminating the tissues drawn over it, tends to the creation of a suppurating cavity above it.

The reasons for removing the uterus along with its appendages are familiar to you, but if you have not accepted them as a rule of action, and yet find at some future day the organ must come out, remove it by the vagina; and if under a mistaken idea that the cervix is of any special use after the body of the organ has been removed, and you have left it, when the conviction reaches you that it should be removed, the vaginal route is the proper one to employ. But, better than all, operate at the onset by the vaginal route, and the clean sweep you then make renders unnecessary further operation.

One word more and I am done. What shall we do with abscess of the broad ligament? I have had but two cases in all my experience. One I examined from above, operated upon, and reported. (See New York Obstetrical Society's *Transactions*). The other is of enough importance to report. It followed curettage of the uterus and operation upon the cervix. It had a predisposing cause in glandular induration of long standing at the outer and upper attachment of the right broad ligament. Supposing it to be due to suppuration in the right appendages, I made a vaginal section for exploration. This most excellent method quickly showed me that the appendages were free and revealed the true position of the pus. It was then entered from the vagina, the opening from the *cul-de-sac* having been closed. I entered it by dissection between the bladder and uterus by way of the paravesical space, hugging the uterus well until I had passed above the ureters. This proved a success. But there is another direction, and that is beneath the peritonæum at and below the inguinal canal. The pus in these cases tends, I believe, to advance along the *line of the round ligament*.

With this I close the presentation of the case, and sum up with the following conclusions:

1. In acute inflammation, with implication of the *cul-de-sac*, incise and drain.

2. In unilateral suppuration, tubercular inflammation excepted, treat the uterus, and remove the diseased appendages by the vagina—*anterior colpotomy*.

3. In double suppuration: Vaginal hysterectomy with enucleation and removal of the purulent appendages—the so-called *pus sacs*.

4. In suppurative disease, whether double or single, if the patient is too weak to stand the radical operation, evacuate the pus and drain, reserving the radical operation for the future. Choose the route (vaginal or abdominal) which the pus seems disposed to select.

5. In broad-ligament abscess—a matter to be determined by a vaginal exploratory section, if necessary—evacuate by approaching the pus through the utero-vesical region, or beneath the peritonæum along the route of the round ligament.

6. In suppurative disease don't do abdominal section, but, if you should, do not leave the uterus or the cervix.

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## THE ANATOMY OF THE ENDOMETRIUM AND THE TECHNIQUE OF ITS REMOVAL BY CURETTAGE.\*

BY WILLIAM R. PRYOR, M. D., NEW YORK.

It affords me the greatest satisfaction to be accorded the privilege of submitting to you my practice and the reason for it. And in your analysis of both I beg that you will be as critically disposed as you may, but mindful of the fact that upon my conception of the anatomy and physiology of the endometrium is based the procedure of curettage as I shall describe it.

Simply expressed, the uterus is a hollow muscle lined by a peculiar membrane. In certain animals this organ is guarded by a sphincter muscle lined by a true mucous membrane supplied with compound racemose glands, called the cervix. Such is the arrangement of structure in women. The character of the uterine muscle is fully understood, and differences of opinion in regard to it are wanting, so of it more need not be said. Regarding the cervix, as I have said, it is but a sphincter muscle, not found where such a structure is not needed,

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\* Read before the New York Obstetrical Society, November 5, 1895.

and always present in those animals whose uteri are vertical. Its anatomy will not be further considered.\*

The endometrium proper begins about the os internum, lines the inside of the entire corpus uteri, and extends a variable distance into the Fallopian tubes. It rests directly upon the muscle without the intervention of a basement membrane. The integrity of the structure is maintained by a delicate meshwork of reticulated tissue which springs from the connective tissue of the muscle and vessels. Lying between the trabeculæ of connective tissue, crowding all the interfibrillar spaces and attached to the fibres, are multitudes of granular nucleated corpuscles, round or oval in shape. The largest are somewhat larger than white blood-corpuscles, which they closely resemble; but there are seen clinging to the reticulated tissue minute granules, and between these and the fully developed are all gradations. The corpuscles multiply by karyokinesis, of course, but there is another probably more prolific source. Whether the minute granules are embryonic corpuscles, or merely granular protoplasm from more mature cells, we do not know. These corpuscles are found in abundance among the muscular bundles. This retiform tissue is penetrated throughout its entire depth by crypts, which even extend between the fibres of muscle. They are both single and branched. Each ends in a *cul-de-sac*, and its form is maintained by a symmetrical tubular arrangement of connective tissue. The surface of the endometrium and the crypts are covered by a single layer of cylindrical ciliated epithelium. The epithelium is attached loosely to the subjacent retiform tissue. Everywhere between the crypts are to be found lymph spaces which become distinct cavities in the muscle. Above the os internum these lymphatic channels unite to pass between the layers of the broad ligament; below the os internum they extend beneath the broad ligaments and end in lymphatic glands over the obturator foramina. The capillaries penetrate as far as the epithelial layer on the surface.

Such, then, is a brief description of the anatomy of the endometrium. At once one is struck with the fact that this soft, unstable membrane is assuredly not a mucous membrane. How, then, shall we class it?

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\* It is sufficient to state regarding the uterine muscle that woman, being an erect-walking animal, the shape of the uterus is maintained by the density of its own walls, and that, compared with the quadrupeds, the lymphatics are sparse relative to the amount of uterine muscle.



Leopold speaks of it as an open lymphatic gland, a view I formerly accepted.

Richard Owen spoke of it as a "peculiar membrane."

Kölliker, as early as 1854, was struck with the close resemblance between the "utricular glands" and the glands of Lieberkühn in the intestine.

Certain it is that the endometrium is not a mucous membrane, but is a lymphoid organ possessing no glands. The follicles dip down into this tissue and are everywhere surrounded by lymphoid cells.

I have striven to solve a few problems which have come to me from a study of the phenomena incident to certain states of the woman : The lack of physiological function in the endometrium of the very fat ; the remarkable activity in the absorptives which follows the removal of the uterus, similar to what we see ensues after destruction of Peyer's patches by typhoid fever ; an action of thyroid extract upon the absorptives, directly the reverse of that brought about by the removal of the mass of lymphoid uterus ; the effect of hysterectomy upon the progress of phthisis pulmonalis ; the synchronous development of the thyroid and lymphoid endometrium. These and many other observations have forced upon me the conviction that we must class the endometrium among the lymphoid organs, and that in development and in function there is a beautiful correlation. Less difficult is it to determine whether we shall place the endometrium among those lymphoid organs which are engaged in the formation of blood or those more nearly allied to the absorptive system. To my satisfaction I have found that the endometrium, in structure and associated function, more nearly resembles the lymphoid structures about the intestinal tract.

Where the differentiation between hæmatopoietic and chylopoietic structures begins we do not know.

To those interested in this work, more skilled than I, and with more leisure for investigation, I may offer a hint. The solution may be found in studying the observation of His upon the parablasic tissues.

The active life of this lymphoid organ is about thirty years, beginning near the age of thirteen years and entering decadence around the age of forty-three. In this time it presents two kinds of activity.

It exhibits certain phenomena associated with others, such as rise in temperature, increased vascular pressure, slight digestive disturb-



ances, increased tissue metamorphosis, etc., which occur once every three weeks in the woman.

The endometrium, with a rhythm commonly of twenty-eight days, swells because of a marvelous increase in the interfibrillar lymphoid cells; the old capillaries enlarge and new ones readily form. The tension increases to a certain point when the epithelium becomes loosened and melts off. The lymphoid cells are then extruded upon the surface of the membrane, and a further increase in vascular tension results in rupture of capillaries with escape of blood into the uterine cavity. All this time the extrusion of lymphoid cells continues. For four days, usually, this bleeding continues, the vascular pressure ceases, and with it the hæmorrhage; but for some days longer (estimated by me as three) the discharge of lymphoid cells continues and appears as a milky fluid. Before this ceases even a reproduction of the epithelium begins. This new epithelial layer is probably produced in part by the division of epithelium left in the tubules, but I am forced to believe that it is chiefly derived from embryonic lymphoid cells which arrange themselves in a layer and change from round to cuboidal, to cylindrical, to ciliated cylindrical, epithelium.

The earlier work of Bossi would seem to indicate that such is the case. At any rate, the membrane recovers entirely from the changes mentioned to undergo the same in three or four weeks more.

The incentive for these changes I have never found. They are probably due to the same cause as are the other phenomena of the so-called "wave."

But they are all checked by pregnancy, the completed menopause, and by removal of the uterus and certain systemic diseases.

The other kind of activity is manifested in the changes incident to pregnancy, and will not be discussed here. I have detailed at this length the anatomy and physiology of the endometrium, because upon the facts as I present them to you is based my method of curettage.

Summed up in one sentence, the elaborate structure of the endometrium and all this delicate association of phenomena are designed for one thing only—the union of a number of lymphoid cells, under the stimulus of a fecundated ovum, to form a decidual cell.

*Curettage: Preparation for the Operation.*—I now pack the vagina loosely, twenty-four hours before the operation, with a moist bichloride dressing (1 to 5,000), to loosen the superficial vaginal epithelial layers. The general treatment is that usual in surgical procedures. At the

time of the operation the vagina is scrubbed with lysol (one per cent.) and a silver brush. All instruments are boiled in soda solution with the nail-scrubs. The towels, sheets, plain gauzes, *irrigator and basins*, are steam-sterilized. The instruments are not put into solutions, but merely laid upon a sterile sheet and kept covered. I cleanse myself and assistants with lysol (two per cent.). For irrigation I use either one-per-cent. salt solution or saturated solution of boric acid. I never irrigate with antiseptics, not even Thiersch's solution. No sponges are used. As a dressing I use my form of iodoform gauze only.

The patient is on the back.

The blunt bullet forceps grasp the cervix and pull it down, and the direction of the uterine canal is ascertained by means of the sound. The packing applicator is now curved to conform to the shape of the sound.

If the cervix be soft or lacerated, I dilate only, but insist upon getting a dilatation of at least half an inch in the non-pregnant uterus. If I can not get it by the use of the dilators alone, I incise the cervix with impunity. In non-septic cases the cervix is amputated if that operation be indicated.

Regarding the method of dilatation, I wish to emphasize the fact that the function of the cervical ganglia must be so obtunded as to prevent uterine contractions, except in post-partum cases. It is upon the activity of these ganglia and fibres that uterine contractions depend. I do not want my dressing expelled. I use Sims' dilators slightly modified. The method of dilatation by graduated sounds I do not like. In using them the canal is opened by pushing against the grasp of the bullet forceps, and either these tear through or else a degree of dilatation less than what I desire is obtained. In markedly septic and specific cases it is well now to swab the *cervical* mucous membrane with strong carbolic solution. This structure is very dense, and its compound racemose glands with difficulty cleansed.

Dilatation being sufficient, I curette next, using as large an instrument as can be introduced, and with a smaller one scraping out the tubal openings and angles.

We have now produced within the uterus a quantity of *débris*, and its removal is absolutely essential to success. I accomplish this by means of as large a double catheter as I can introduce. This, is in certain cases, supplemented by swabbing out the cavity with gauze. I no longer paint the uterus with iodine or other antiseptic.

The uterus is now packed full of iodoform gauze, using for this purpose no speculum or forceps, but only a very stiff applicator.

I get into the virgin uterus one yard of gauze an inch and a half wide. A uterus aborted at the third month will contain one yard three inches wide, or even more. It must be packed in tightly.

If the cervix has been incised, the rents are not sewed up, as they close sufficiently without this. The vagina is snugly packed with iodoform gauze. The women are usually up in three days. I remove all dressings never before the fourth day, usually on the eighth. If the uterus be septic and large, it is again packed with gauze; but I do not often do this. With large uteri I begin ichthyol tampons in the vagina at the third week to aid involution; but absolutely prohibit cohabitation, douching, etc., for two months.

The field of work must be maintained in surgical cleanliness.

I have had to repeat the operation in a few cases of curettage for puerperal sepsis, but never in others.

Believing as I do that this structure is most delicate, that all antiseptics produce slough, that the operation must be modified by the function of the organ, and that we must so do the operation that an anatomically perfect endometrium may be reproduced, I never introduce into the uterus any irritant whatever. Innocent as is iodoform, I use but a ten-per-cent. gauze made by my formula.

I strive to entirely remove a diseased organ, take away the *débris*, produce no dead tissue, and firmly apply to every part of the field of work a non-irritant antiseptic absorbent dressing, under whose protection invasion of pathogenic germs is impossible and reproduction of a histological membrane assured, and, by the pressure it exerts, bleeding checked.

I do not wish it expelled by uterine contractions, hence I so forcibly dilate the cervix.\*

The gauze does not drain in the sense that a tube does, but it literally drains because it removes fluids.

Nowhere else in the body must we so studiously avoid interference with the function of the repair cells as here.

Whether for sterility, gonorrhœa, sepsis, puerperal sepsis, dysmenorrhœa, or as a palliative measure directed against fibroids, I always curette as I have described to you.

I have sometimes debated whether there did not exist a possibility of further extending this operation to an invasion and drainage of

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\* After a clean curettage the endometrium is reproduced in from three to four weeks. I would quote you Bossi's work on this—both his earlier work of three years ago and his later investigations.

pus tubes. To this end I have had made and used a very small curette. The uterine arteries were first secured, and incision and tearing of the cervix made to such an extent as to widely open the canal. I have then attempted to curette the tubal openings and probe them with a ureteral catheter. In the advance of a safer, less blind palliative operation through the *cul-de-sac*, I have ceased to work upon this line.

I make this digression merely to suggest a possible extension of the operation of curettage.

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## SEVENTEEN CASES OF HYSTERECTOMY BY THE "BAER METHOD," WITH REMARKS.\*

BY JOSEPH TABER JOHNSON, M. D., WASHINGTON, D. C.

In the evolution and perfection of the operation of hysterectomy for the surgical treatment of fibroid tumors of the uterus many sad and important lessons have been learned. The first successful hysterectomy ever performed was done by Dr. Burnham, of Lowell, Mass., in 1853. Strange to say, he was compelled to suffer the same opposition and vituperation which was heaped upon the head of McDowell after performing his first successful ovariectomy in 1809, in Danville, Ky. • Kimball, who assisted Burnham in his first case, subsequently operated with success deliberately, and after a correct diagnosis.

In 1875 Kimball reported nine hysterectomies, with three deaths. Burnham had then done sixteen hysterectomies, with four deaths. These results were considered fairly good at that time. In 1878 Gusserow reported that up to 1866 Kœberlé had lost all but eight out of forty-two hysterectomies, giving him a mortality of eighty-one per cent.

Schröder collected reports of a hundred and eight hysterectomies, with a mortality of 85.3 per cent.

Thomas's *Diseases of Women* reports twenty-four cases, with eighteen deaths.

Storer, in 1874, reports ten American hysterectomies; all died.

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\* Read before the Southern Surgical and Gynæcological Association, November 14, 1895.

From 1874 to 1894 many changes in technique, including asepsis, the Trendelenburg position, the intrapelvic but extraperitoneal treatment of the pedicle—the closure by suture of the separated edges of the broad ligament—drainage when necessary through the vagina after total extirpation, have all had their share in diminishing the mortality from 85.3 per cent. In the June number of the *Annals of Gynecology* Cushing publishes a report of sixteen hundred and seventy suprapubic hysterectomies done by American operators, with a mortality reduced to 13.8 per cent.

One of the improved methods of widening the scope of this beneficent and magnificent operation, and greatly reducing its mortality, was introduced, advocated, and practiced by Dr. B. F. Baer, of Philadelphia, who is quoted in Cushing's article as having operated seventy-eight times with seventy-one recoveries and seven deaths.

This paper is presented for the purpose of reporting and recording seventeen operations by Baer's method, with sixteen recoveries and one death.

CASE I.—Mrs. V., German, aged thirty-four, mother of two children, was seen in consultation with Dr. Cannon. She had a fibroid filling the pelvis and causing great suffering from pressure on the pelvic organs. She was confined to her bed with a sharp attack of peritonitis, produced, it was thought, by a number of examinations made by consulting physicians with hope of an operation. The tumor was situated so deeply in the pelvis that no one who had seen her thought it possible to form a pedicle, and an operation had been declined. The condition of the patient demanded immediate relief, and I suggested the removal of the tumor by the method described and successfully practiced by Dr. Baer, of Philadelphia, which requires no pedicle. The patient was removed to my sanatorium, and, after the usual preparation, the tumor, uterus, and appendages were removed down to the internal os. The abdominal incision was completely closed without irrigation or drainage. An abscess occurred a week later in the tissues about the stump under the closed peritonæum, and the patient had a discharge of pus for several days, which fortunately found exit through an already widely dilated cervix. She made a good recovery, and went home four weeks from the date of her operation. Not being satisfied with this operation, I sought an opportunity to see Dr. Baer carry out the technique of his method.

Having previously done thirty-four supravaginal hysterectomies with the stump always clamped externally, I felt somewhat strange in this new and dangerous field of work.



The Trendelenburg position was of the greatest service in bringing the parts clearly into view, and greatly aiding in stitching the peritoneal flaps over the stump.

CASE II.—Miss B., aged thirty-two, was sent to my sanatorium by Dr. Stonestreet, of Rockville, Md. She had been suffering with a growing fibroid for a number of years, both from the effects of pain and hæmorrhage. The tumor reached up to a level with the umbilicus and down into the pelvis. The chief symptoms which finally drove her to the operation were constant and increasing pressure on her bladder and rectum. In this case also I performed supravaginal hysterectomy by Baer's method. The patient made a good recovery, and from a recent letter I learn that she continues well. I had the very best opportunity to contrast the intra- and extra- abdominal methods of treating the pedicle in this case, as I had operated on Miss B.'s sister some time previously for a large uterine fibroid, clamping the stump externally with a Kœberlé *serre-nœud*. The argument was entirely in favor of Baer's method, especially as the sister first operated on now has a small ventral hernia. Another peculiarity of this family, and one which I have not met before, is the fact that still another sister has a rapidly growing fibroid tumor of the uterus.

CASE III.—Miss D., aged twenty-seven, was seen in consultation with Dr. S. S. Adams. The patient had a large fibroid reaching half way between the navel and the ensiform cartilage. The most troublesome symptom in her case was from partial suppression of urine; what little did pass was loaded with albumin. She also had some very queer mental symptoms, which caused her relatives to fear that she was becoming insane. Feeling sure that her kidney symptoms resulted from pressure, I proposed the removal of the tumor. She came to my sanatorium and was operated on by the Baer method. She made a good recovery, and is now able to do the work of two women. I saw her last week and hardly knew her; she said she had gained fifty pounds.

CASE IV.—Mrs. K., German, aged fifty-three; has had three children and one miscarriage. Was bleeding for three years, and for eight months previous to her operation was confined most of the time to her room and much of the time to her bed. She had been treated by a number of men and curetted under chloroform in one of our hospitals. She had a sloughing intra-uterine fibroid and was already septic from the absorption of putrilage. She was weakened also from long-continued hæmorrhages. I feared she could not stand an operation. Believing, however, that she would soon die unless relieved, I



took her to my sanatorium and did what Joseph Price calls a life-saving operation. The vagina and cervix were thoroughly disinfected, the uterine cavity packed with iodoform gauze, and Baer's operation performed. Patient had a pulse of 130 and temperature of  $102^{\circ}$  at the time of operation. She made a slow and troublesome convalescence, but is now quite well. In none of these operations did the method have an unobstructed or fair chance. The complications and consequences have been so exhausting and unfavorable for any method that the successful results in these cases should be set down as more than usually creditable to this particular method. In addition to the exhaustion of Mrs. K. from loss of blood to an extent which threatened at times to be immediately fatal, her eight months in bed, and her septicæmia, she had a pyosalpinx on one side and a large dermoid tumor on the other. I felt sure at the time that no other method offered so good a prospect of cure, and I am sure of it now. Another peculiarity worthy of notice is the age of the patient. The tumor had grown since she was fifty, contrary to the statement of the text-books and the views of many practitioners. Some time ago, in a paper on "Fibroid Tumors growing after the Menopause," I drew attention to the frequency of the exceptions to this rule and to the fact that it could no longer be good advice to sufferers from uterine fibromata to favor waiting for the change of life with the promise that the tumor would disappear. Baer, Gordon, Polk, and others have recently drawn attention to this fact also, and many cases have been reported of uterine fibromata either starting to grow after a postponed menopause, or continuing to increase in size sometimes more rapidly after than before the change of life occurred.

CASE V.—Mrs. C., aged thirty-seven; mother of three children, last one ten years old; had been in good health up to about three years ago, when she began to be troubled with profuse menstruation. Gradually she lost more and more blood, until about a year ago she began to have profuse hæmorrhage, not only at the time of her periods, but in the intervals between them. The exhaustion caused by this loss of blood finally compelled her to stay in bed. I was called to see her in consultation with Dr. Caldwell, of this city, who had already discovered a fibroid tumor of the uterus and had been treating it for some time. She had had an attack of peritonitis, and the abdomen was still so tender that a perfect examination could only be made a week or two later. Electricity and all medical treatment failing to arrest the flow of blood, an operation was finally proposed and performed at the patient's house on January 2, 1893, in the presence of

Dr. Caldwell and a number of other physicians. The Baer operation, as we call it, was successfully performed.

The patient made an uninterrupted recovery, had no pain, and took no medicine. Indeed, her convalescence was the most rapid and smooth and uneventful I ever had the pleasure to witness.

CASE VI.—This operation was begun with the intention of removing the ovaries and tubes for the purpose of checking severe and dangerous hæmorrhages which had resisted all other methods of treatment, including curettage and electricity; but on account of the severity of the hæmorrhage I thought it would be safer to perform the Baer operation, which was accordingly done. This patient also made a quick, smooth, and altogether beautiful recovery.

CASE VII.—Mrs. G. came into my sanatorium with an unusually large fibroid which had been growing and bleeding for fifteen years. Indeed, I was surprised, as this lady was a lecturer on spiritualism and quite a traveler, that she was ever allowed to get so far south as Washington with such a large and such a troublesome tumor. It came out easily by the Baer method, and, after considerable blood had drained away from it, weighed nearly fifteen pounds. Alarming hæmorrhage occurred while cutting the tumor away, and, at the suggestion of a surgeon who was witnessing the operation, I rapidly fastened an elastic ligature about the pedicle. I found as I proceeded to the complete removal of the tumor that this delay had been unnecessary, as the loss of blood was just as great as before; indeed, it all came from the tumor, and ceased, of course, with its removal. The color of the blood should have suggested its source, and should have allayed instead of arousing fears that the uterine arteries had not been securely tied. Some of the blood-vessels over the surface of this tumor, and inside of it also, cut across in its removal, were as large as femoral arteries, and could no more have been dried up or closed up by electricity than could the veins and arteries of the arms and legs. The electricity enthusiast has yet to explain to us the selective powers of this "subtle and mysterious agent"—how it is that under their wishes or control it skips over or through all the tissues of the abdominal or vaginal walls, the peritonæum and viscera, attacks and dissolves hard inflammatory products in the pelvis and solid fibroid tumors weighing ten or twenty pounds supplied with nourishing blood conduits as large as lead pencils. That it temporarily allays pain, arrests for the time the abnormal flow of blood, and proves a reviving and sometimes an exhilarating tonic to the exhausted nervous system, we are quite ready to admit, but the sooner the profession throws off

the shackles with which our electrical brethren have been trying to bind us, as well as the too confiding public, the better will it be for the welfare of our patients and the credit of surgery. Surgeons who have been allured after its sparkling brilliance and supposed glittering advantage over all things surgical are now joining with us in trying to improve the technique of hysterectomy. Even Keith has an excellent chapter in his recent book on this subject, and our beloved brethren who have been flying the "conservative" flag are among the most radical in advocating complete hysterectomy for the cure of double pus tubes and uterine fibromata. The patient above referred to made a perfect recovery, and recent advices report her in excellent health. She has gained fifty pounds since her operation.

CASE VIII.—Miss R., aged thirty-two, was brought to my sanatorium by Dr. Muncaster. She had suffered from a growing fibroid for several years. Hysterectomy down to the internal os was performed. Tumor weighed six pounds. Patient made a good recovery, and went home four weeks from the day of her operation.

CASE IX.—Mrs. C., wife of a naval officer, came to my sanatorium from Portsmouth, Va. She had been a great sufferer from pelvic pains and hæmorrhages for three years. Had been treated by drugs and electricity without success. After admission she was thoroughly curetted under ether. Her next period was worse than any preceding one. She had an interstitial fibroid about the size of my fist protruding somewhat into the uterine cavity. She desired a radical operation before returning home, and readily consented to the removal of the tumor, and the uterus with it, if thought best. She already had two children, and was not opposed to the effect of the operation, which was fully explained to her. The Baer operation was done, and notwithstanding the occurrence of an abscess, which opened through the incision in the abdominal wall, she made an unusually rapid recovery, and started for home four weeks after her hysterectomy. I saw her last month. She is now perfectly well.

CASE X.—Mrs. W., aged sixty-three, a widow, mother of three children, was sent to my sanatorium by Dr. Peter, of Georgetown, D. C. She was suffering from a bleeding fibroid. She had been curetted in Richmond once, and by me twice. As relief from hæmorrhage only lasted from three to six months, I finally decided to remove the tumor and the body of the uterus, which was done on October 24, 1894, by the Baer method. She made a smooth and quick recovery.

CASE XI.—Mrs. K., aged forty-eight, mother of four children, came to my sanatorium from Manassas, Va., on November 11,

1894, with a large bleeding fibroid. Tumor was removed by the Baer method; recovery perfect, with the exception of an abscess under the closed peritonæum, which discharged through the cervical canal. I saw this lady recently, and her health is better than for many years.

CASE XII.—Mrs. W. was operated on in my sanatorium in June last for a six-pound uterine fibroid by the Baer method. She did well for four weeks, when she had an attack of indigestion, and died a week later of obstruction of the bowels. Post mortem demonstrated that she might have been saved by an operation. A simple twist was found in the small intestine which might have been untwisted if we had properly diagnosed it and operated in time. I do not blame the method for her death, occurring as it did five weeks after her operation.

CASE XIII.—Mrs. P. was brought to my sanatorium by Dr. Perry, of this city. She had a fibroid about the size of a child's head, which had produced obstruction of the bowels by blocking up the brim of the pelvis. As the tumor was so rotten that it tore apart in separating adhesions and effecting its delivery through the abdominal incision, it is difficult to say what or whose method was followed in its removal. By a tedious process of ligating and cutting it was finally removed, the abdomen washed out and closed up round a glass drainage-tube. She made a rather slow recovery on account of a fæcal fistula, which is not entirely closed at the present time.

CASE XIV.—Mrs. H. came to my hospital from Colorado in July last, but, being unable to receive her at that time, the operation was performed in the Garfield Hospital. After going through the various steps of the Baer operation in this case, the cervix was removed also, as malignancy was thought to exist. The patient returned to her home in October feeling very well. I examined her previous to her departure and was much pleased with her condition.

CASE XV.—Miss T., aged thirty-six, came to my sanatorium in September from Scranton, Pa. She had a bleeding fibroid. Had been curetted and otherwise treated for a long time with only temporary benefit. She desired a radical operation, which was done by the Baer method. She made a smooth and rapid recovery and left the hospital in three weeks. Her pulse or temperature never reached 100.

CASE XVI.—Miss G., same age, came to my sanatorium from Bryantown, Md., last month, a great sufferer from severe hæmorrhages for many years. Operation by the Baer method. She is now well.

These seventeen supravaginal hysterectomies comprise my entire

experience with the Baer method. Any new method of treatment which attempts to supplant older or different methods must, of course, be proved by experience to be the most successful in saving health and life before it can be safely adopted to the exclusion of all others. This comparatively small number of cases is presented for record, and to aid, as far as they go, in the evolution of this important question. The cases reported by Baer himself were so uniformly successful, and the convalescence so much smoother, shorter, and less eventful than that following the external treatment of the stump, as to induce me to follow his example, and, so far, only success has resulted from so doing.

Baer's operation, or those operations somewhat like it, performed by Eastman, Dudley, Goffe, Chorbak, Baldy, Polk, Krug, and others, all require more time and manipulation of sensitive and important viscera than is needed to encircle the pedicle with the wire, and close the peritonæum under it.

Kelly has evolved a kind of railroad method of removing a fibroid tumor in three minutes and thirty-five seconds, very similar to Baer's, which few can ever hope to equal and none to surpass. Baer's operation requires less time and manipulation, however, than total extirpation, and leaves the patient less mutilated than if the cervix had been separated from its vaginal attachments and completely removed. In cases where the cervix is suspected to be malignant, of course it should be extirpated; no one disputes the universal application of this rule.

In performing hysterectomy surgeons should not feel bound exclusively to one particular method. Circumstances differ so completely in different cases that one cast-iron rule of operating can not safely be adopted for all cases. It may be necessary, in order to secure the best results for some particular patient, after opening the abdomen, to change altogether our preconceived and prearranged technique of commencing or concluding an operation. The "unexpected" is so frequently found in abdominal surgery that it behooves one operating in this cavity, to be, like Mars, armed at all points. An operator might exhaust an aged, weak, or anæmic patient by prolonging his manipulations and mutilations sufficiently to totally extirpate the uterus in conformity to his inflexible rule or method, when this same patient might have survived—quicker and safer for her—the wire-clamp operation as practiced by Bantock in London and Joseph Price in this country. It is better to have one's convalescence prolonged two or three weeks, or even to have a ventral hernia, than to



die on the table or within twenty-four hours, while the various steps of some particular and unalterable method are being carefully carried out. The Bantock-Price operation has, up to a recent date, yielded the best results in the number of final recoveries, and we can not safely discard it absolutely. It has its drawbacks, but it also has its advantages. It is safer for the inexperienced surgeon. An expert may safely take his choice between total extirpation and amputation at the internal os, or any modification of either of them, but until the evolution of hysterectomy shall have demonstrated more than it can at present claim we can not safely cling to one exclusive method for all cases.

Our minds and technique must be sufficiently elastic to follow the Mikado in fitting the punishment to the crime.

NOTE.—Since the above paper was written I have performed three more Baer hysterectomies successively.

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## VAGINAL INCISION AND DRAINAGE.\*

BY J. W. LONG, M. D.,

Professor of Diseases of Women and Children in the Medical College of Virginia,  
Richmond, Va.

In presenting this paper to the Fellows of this Association I am aware that I bring nothing new to my hearers, but the procedure herein advocated is of such incalculable value, with clearly defined indications, that I wish to hear you discuss it, and to send it forth on its life-saving mission; for surely if there is any operation which snatches a woman from the very jaws of death this one in many instances does.

### INDICATIONS.

In those cases of pelvic inflammation in which there is an effusion of serum or collection of pus anywhere in the pelvic tissues outside of the tubes the indication is to *drain*. If the serum, or pus, or blood is confined within the tubes, the only logical thing to do is to remove them. To drain tissues that can be safely and easily removed is folly and mere pretense.

In this connection it should be remembered that it is the sepsis

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\* Read by title before the Southern Surgical and Gynæcological Association, November 13, 1895.

*outside* of the Fallopian tubes that causes systemic infection—that kills. I desire to emphasize this. When the tubes become infected, Nature sets to work to seal the fimbriated extremity and to coat over the entire tubes with plastic lymph. If she succeeds in doing this before the infection passes through the tube and reaches the peritonæum, the patient is safe from all immediate danger. We are familiar with the trouble a “leaky pus tube” causes. In support of the assertion that septic matter confined within the tube does not cause systemic infection, I recall a case of double pus tubes complicating a fibroid uterus upon which I operated at the Old Dominion Hospital recently. The right tube was distended with pus to the size of the forefinger. The left tube adhered to the ovary so closely that it was impossible to say where tube stopped and ovary began. They constituted a true tubo-ovarian abscess, containing a half pint of pus. The amount of pus and the nature of the fusion between tube and ovary show that the pus must have existed months and probably years, yet there was no sepsis.

On the other hand, a small amount of septic infiltrate or fluid, whether in peritonæum or cellular tissue, will produce profound sepsis. It is in these cases that vaginal incision and drainage are indicated. We operate not to remove diseased tissues, but to drain away septic poison. The more acute the sepsis, the greater the need for drainage. Also, in those cases in which the patient has “weathered the storm” of the acute symptoms and the case has become more or less chronic, with hectic emaciation, an operation is as urgently demanded.

#### PER VAGINAM vs. PER ABDOMEN.

It may be asked, “Why the vaginal incision in preference to the abdominal?” There are several reasons :

1. Vaginal drainage is ideal drainage. Does the vagina not carry away the waste of each monthly period and puerperium? The very structures of its epithelial lining, many-layered and resistant, makes it specially suitable for a drainage canal. The vaginal incision taps the septic focus at its base. The drainage is down hill. Gravity aids capillarity. There is no coffee-pot-spout arrangement that requires to be sucked out with a long-nozzle syringe at stated intervals.

2. There is less danger of further infection. To drain septic matter through the abdomen is always hazardous, no matter how careful one’s aseptic precautions.

3. The operation *per vaginam* is much easier to do.

4. There being little shock attending the operation, it may be done

when the patient is *in extremis*. I have performed this operation when the patient was too feeble to take an anæsthetic. It is truly a life-saving operation.

#### DANGERS.

The dangers, other than those incident to anæsthesia, are twofold :

1. Opening a viscus, or blood-vessel.

This can be avoided by care. I always estimate the thickness of the upper part of the recto-vaginal sæptum by one finger in the rectum and the thumb in the vagina. The median incision just behind the cervix, very short and just deep enough to go through the vaginal wall, will obviate the danger of opening either viscus or vessel.

2. The second danger is that of opening the peritonæum, thereby infecting it.

The same care and thorough asepsis will obviate this danger. Only once have I entered the peritonæum while attempting to open a septic accumulation. In this instance the sac was situated laterally ; asepsis prevented any harm.

*Technique.*—I need scarcely speak of the technique to this audience. I prefer the dorsal position. The vagina is thoroughly cleansed. If there is septic endometritis, the uterus should be curetted and packed, *provided* the patient can stand the additional shock and the uterus is readily accessible, neither of which conditions is always present. The cervix is now pulled forward and steadied with a tenaculum. At this juncture I sometimes employ an aspirating needle to determine positively the presence and location of fluid, but this is not necessary in every case. With a scalpel a very short incision is made in the median line immediately behind the cervix. Of course, if there is evidence of softening or pointing elsewhere, the incision should be made accordingly. As soon as the vaginal wall is incised the forefinger is introduced into the opening and, while the mass is steadied with the other hand on the abdomen, the finger is cautiously bored into the tissues. If a cavity is entered, the finger is withdrawn and the contents allowed to escape. If only sodden tissues are felt, the finger is carefully forced into the infiltrated area, making drainage tracks for the septic infiltrate. It is immaterial as to whether the abscess or infiltrate is *intra-* or *extra-*peritoneal; the procedure is the same. I have palpated with the exploring finger the adherent coils of intestines that formed the upper and back wall of an abscess, and I have palpated the distended tube from between the layers of the broad ligament. Whether free fluid or infiltrate is



found, the parts are flushed with normal salt solution and packed with iodoform gauze. In abscess cases a rubber drainage-tube may be added. When in doubt about the exact location of the effusion I have opened the abdomen and located it; then, with one hand in the abdomen acting as a guide, with the other made the vaginal incision. When this is done, an assistant who has clean hands sews up the abdominal incision.

I append a brief report of two of the worst cases of this kind for which I have operated:

CASE I.—Mrs. W. P., residence Waynesboro, Va. I was called to see this lady in June last by the attending physician, Dr. C. A. Fox. The patient gave the following history: Age thirty-six, married; three children, youngest six years old. Two years and a half ago had a pelvic abscess that broke into the rectum. A year and a half ago she had cervicitis, which Dr. Fox treated and greatly benefited by local applications. On the 30th of March (six weeks prior to my visit) the attending physician was called to see her, and found a tender mass on the left side of the pelvis. She had pelvic pain and fever. This mass has slowly but constantly increased in size till now it nearly fills the entire pelvis. The temperature has ranged from normal to  $102^{\circ}$ ; pulse very frequent and feeble. Recently she has had profuse and exhausting night sweats. She is greatly prostrated, and appears very sick. An examination reveals the mass situated more to the left superiorly, but below it fills the entire pelvis. *Per rectum* the mass is felt pressing low down. The uterus is pushed upward and forward, and the posterior vaginal fornix is bulging. No evidence of pointing can be felt or seen, but the mass has a doughy, œdematous feel.

The patient was so weak that an abdominal section was out of the question, so we determined to operate *per vaginam*.

Under ether the presence of pus was demonstrated by the aspirator; then a short incision was made in the posterior vaginal fornix, when one hundred and twenty cubic centimetres of sero-pus slightly tinged with blood escaped. This was not contained in a well-defined cavity, but was like an infiltrate. The escape of this fluid reduced the mass and greatly relieved the pressure on the rectum. Now, with the forefinger in the opening and up between the layers of the broad ligament, and the other hand on the abdomen, the left tube, distended to half the size of one's wrist, could be easily palpated. The wound was flushed with salt solution and packed with iodoform gauze. I advised the doctor that when she recovered from this operation and gained some strength he should bring her to the hospital, and I

would remove the tube by an abdominal section. I expected this woman to get better after what I did, but to my surprise she made a beautiful and uninterrupted recovery. Her temperature and pulse at once fell to normal, the night sweats stopped, and, in a word, she got well. Recently I wrote Dr. Fox and asked him to examine Mrs. P. and report to me her condition. His reply is so interesting in this connection that I venture to insert most of it :

"WAYNESBORO, VA., October 31, 1895.

"*Dr. J. W. Long, Richmond, Va.*

"DEAR DOCTOR : I examined Mrs. P., and find some tenderness in the region of left tube and a broad band which is hard and which I suppose is Nature's wall to protect the cavity when she had the abscess. It is tender only to firm pressure. She is very fat and well. The uterus is tender, due to the lacerated cervix, I suppose. This ought to be operated on, as it keeps up a more or less cervicitis. Would you advise the operation, or would it be better to wait until Nature removes the results of the abscess or this has been removed by operation? She is so well she would not have any operation done unless there is danger of her having another abscess.

"Fraternally yours,                      A. C. Fox."

CASE II.—This patient—F. H., a mulatto woman—was sent into my service at the Old Dominion Hospital by Dr. B. C. Keister, of South Boston. She entered the hospital in July. She has been married eight years, and been pregnant only once—four years ago—when she was delivered of a stillborn child. She dates her trouble from this time. For more than a year she has been quite sick, and for three months bedridden, suffering a great deal. Her temperature when examined was  $104^{\circ}$ ; pulse 140 and very feeble. The husband said she had had a fever for a month. She was greatly emaciated and prostrated. The abdomen was distended and exquisitely sensitive, especially its lower half. A mass could be felt filling the pelvis and the lower abdomen to near the umbilicus. The cervix was pushed very high in front. I stated to my staff that I would not operate on her, she was so near dead; but I put her on the examining table with the view of making some further observations. After a thorough examination I was so sure she was suffering with sepsis, due to pelvo-abdominal inflammation, that I determined to make an effort to save her. An abdominal section would have killed her undoubtedly—even a general anæsthetic she could not have stood; so, after

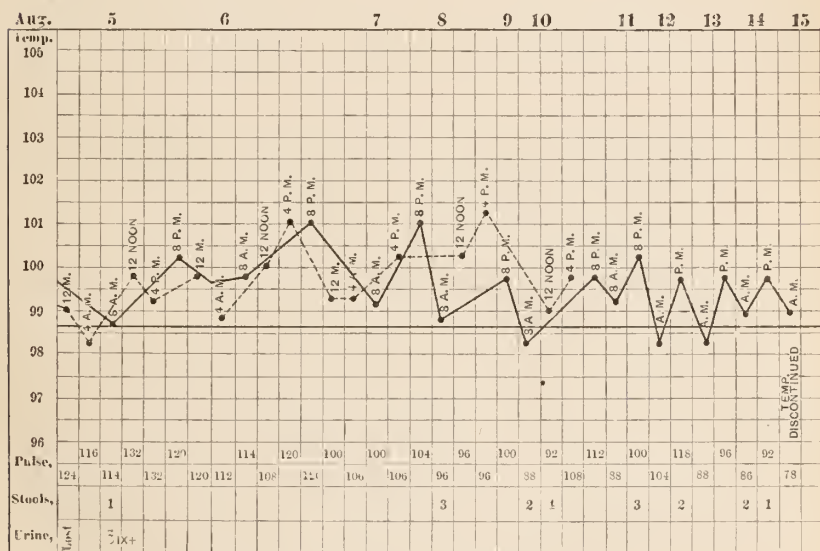
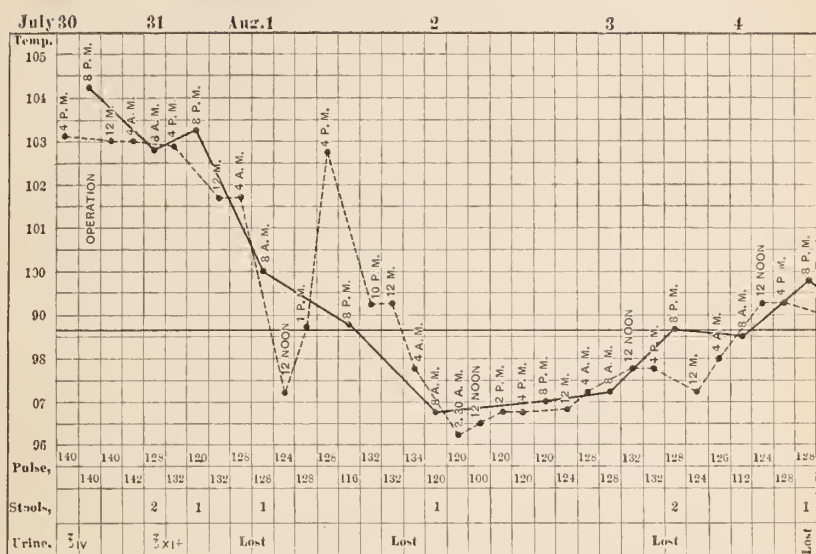


Diagram of Temperature and Pulse.

Black line represents temperature taken twice daily; dotted line represents temperature taken every four hours.

applying cocaine to the posterior vaginal fornix, I made a very short incision and bored the forefinger into the tissues. On withdrawing the finger, about fifty cubic centimetres of pus escaped. I could still feel a large mass, so I cautiously pushed the finger about in the tissues and opened into another deposit of three hundred and fifty cubic centimetres of sero-pus. Even then I could feel a part of the mass that was supposed to be a distended tube. I did not penetrate any farther, but flushed out the wound and packed it with gauze. The manipulations were so painful that I was betrayed into giving her a few whiffs of chloroform, and afterward bitterly regretted it, for her urine became very scant, with albumin and casts. My colleague, Dr. Johnston, was present, and kindly examined this case. This woman's temperature fell to  $96.2^{\circ}$ , and for two days she was semi-comatose and delirious. On the third day she was a little better and, to my great delight, made a splendid recovery. I saw and examined her last week. She is fat and practically well. The uterus is freely movable; there is little pelvic tenderness. On the left side I can still feel the enlarged tube, but not one fourth the size it seemed to be four months ago. If it ever troubles her I shall remove it, which can be done with safety *now*. To have done so in July, when she first came to the hospital, would have sealed her doom.

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## HYSTERECTOMY IN ACUTE PUERPERAL SEPSIS, WITH REPORT OF CASES.\*

BY A. MORGAN CARTLEDGE, M. D.,

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Hysterectomy for acute puerperal sepsis stands most prominent among the recent surgical procedures suggested and practiced in pelvic work. Scarcely a year since one could count upon his fingers the reported cases. Within the year there has been enough written to evince the sharp interest surgeons are taking in the subject. It is a subject that every careful and thinking surgeon will feel requires to be approached with the greatest consideration, for the manifold aspects of the matter demand deliberation and knowledge exercised

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\* Read before the Southern Surgical and Gynæcological Association, November 14, 1895.

from several different standpoints. To say that hysterectomy should be performed in every case of severe puerperal sepsis is to advocate a most dangerous and irrational practice; to say that the operation should never be done in such cases seems equally unwarranted. If good practice is to be found between these extremes, it is to this end that we address ourselves.

In order to correctly comprehend our subject it is necessary to define what is meant by acute puerperal sepsis. I venture a limit of twelve weeks from parturition as a suitable time, for the victim of acute puerperal sepsis has usually died, recovered, or passed into a different pathological category by the expiration of that time. The ideas expressed in this paper have reference solely to the pathological changes, symptoms, and treatment of sepsis observed during the first twelve weeks following parturition. As a matter of fact, a positive decision as to the advisability of an operation will often be demanded during the first ten days.

Puerperal sepsis is not an exception to the rule that to properly diagnose and treat the disease we must comprehend its pathology and natural history as learned from the bedside. The pathological sequelæ of puerperal sepsis, as found many months and years afterward in the pelvis in which the modern achievements of surgery have been so great, have done much to direct surgeons from the true pathology of acute sepsis here.

*Morbid Anatomy.*—I believe that the common-sense dictum, based upon the experience of many faithful and competent observers, that puerperal sepsis is rarely ever an auto-infection, will hold good. The manner of infection is threefold—(1) hands of the physician or midwife; (2) instruments introduced into the vagina and uterus; (3) the invasion of clots without and within the vulva by saprophytic bacteria, which clots extend by continuity to intra-uterine clots, thus permitting infection of the uterus from a blood clot in contact with air. From the essentially different manner of infection, and the equally different clinical history and pathological changes, to be rational in our treatment we must consider the subject of puerperal sepsis under two heads:

*Puerperal Intoxication, or Sapræmia.*—The essential pathology of this disease consists in the invasion of dead matter, such as retained blood clot and placental tissue by saprophytic bacteria, and absorption into the individual of the products of their growth—viz., toxic ptomaines. Extending, as such infection usually does, from without along blood clots in the vagina, it is rare to observe disease symptoms



before the fourth day, and from easily divined reasons we can see how such infection of a patient might be delayed until the sixth or eighth day after labor. Sepsis following abortions and most early miscarriages is undoubtedly primarily of this variety. The toxic symptoms are very marked: Sudden severe chill, followed usually by very high temperature—much higher, indeed, than is observed in what we designate organic or true puerperal infection; the lochial discharges are of the most malodorous kind, without evidence of much pus, but more a sanious watery discharge. High temperature, rapid pulse, and delirium are characteristic of the severer forms of this type of sepsis. Severe pain, tenderness, and tympany are not characteristics. While the symptoms are most alarming, and may rapidly prove fatal if unrelieved, fortunately a little well directed treatment by the curette, free antiseptic irrigation, and the introduction of a tubular drain into the uterus will cause a rapid and marked improvement.

*True puerperal infection* is essentially a septic cervicitis, endometritis, or metritis. I think this term should be employed as far as possible to define those cases of septic infection nearly always beginning in the infection-atrium of a lacerated cervix, extending thence to the body of the uterus in several different ways—first, as a purulent endometritis, which ultimately infects the Fallopian tubes. However, such a pathological course, I am satisfied, does not mark the acutely severe types of the disease, and there is more time to consider the question of operative interference. It is my conviction from observation that the morbid changes taking place in the structures will demonstrate that tubal changes are more in the nature of secondary or later extension of the infection, both in sepsis following sapræmia and in primary puerperal infection. Again, the cervical infection, by virtue of its intensity, extends readily to the endometrium, also through enlarged lymphatics, to the glands situated upon either side of the cervix. This adenitis and the periadenitis which attends it renders any bimanual examination with a view of determining the condition of the uterine appendages unreliable. Large masses may often be felt giving the impression of diseased tubes, when in reality these structures will remain above in a healthy condition. The pericervical inflammation gives rise to abscesses which usually point beside the cervix into the vagina. Occasionally pus dissects between the vagina and rectum as far as the perinæum. Again, it may dissect beneath the peritonæum so far forward as to reach well above the pubes. The most characteristic lesion of this form of the disease seems to be the formation of subperitoneal uterine

abscesses. These are usually multiple, varying in size from half an inch to four inches in diameter. They are no doubt due to direct absorption, through enlarged lymphatics, of septic matter from the endometrium and cervix. I think I have been able to mark the formation of these abscesses, as they occurred from time to time in a case of lingering puerperal sepsis, by the temperature waves. In two cases of multiple subperitoneal abscesses I have observed there was no attachment to other peritoneal surfaces. The uterus sat up clearly in the pelvis, and had much the appearance of being filled with small, multinodular myomatous growths. The propriety of a hysterectomy in such a case seems undoubted. Can we diagnosticate such a condition? With attention to the mode of infection, character of early symptoms, and physical signs, it may be made nearly as certain as most pelvic conditions.

True septic infection is due to the implantation upon the torn cervix, or more rarely the perinæum, of pathogenic bacteria by the hands of the attending physician or midwife. This form of infection is probably most often due to streptococci; though such a variety of pathogenic germs have been found in puerperal sepsis, this point is not quite clear. Two points are susceptible of proof: the nature of the communication, and its origin in an infection-atrium, such as a torn cervix, more rarely the raw uterine surface. That Nature, when undisturbed by unscientific and meddlesome midwifery, is capable of resisting pathogenic organisms found so abundantly in the vagina we have much evidence to support. Several years ago I was forcibly impressed with what to me then seemed a remarkable fact. My hands are much given to chapping during the winter months; more than once I have had occasion to notice how my chapped hands would improve after attending a woman in confinement. In my case it was so distinct as to be plainly appreciated. I did not understand the importance in those days of as rigid asepsis as now, and probably in the long, weary night watch did not wash my hands before and after examinations as carefully as now.

As bearing upon this subject, the recent experiments of Stroganoff upon bacteria of the birth canal are of especial interest. He finds, in cultures made from cervix secretion, no bacteria as a rule, and that the mucous secretions of the cervix kill micro-organisms. What a lesson is to be learned from this! The rude accoucheur who sweeps his infected index around the cervix not only makes abrasions and sows the seeds of untold misery to the helpless victim, but in so doing actually robs her of that protection—an antiseptic mucus—which a

generous Nature has provided to protect her in case rents and tears occur from unpreventable causes. It seems a rash commentary, but our statistics would probably more than prove that all the women saved by the art of midwifery will not offset in numbers those lost by the evils attending its practice before the aseptic era.

*Treatment.*—Our part of the subject of treatment is only to deal with cases requiring a hysterectomy for their relief ; but, in order to determine the propriety of this very difficult question, it is necessary that we take into account what has previously been done for the patient. If the uterus has been cleansed by irrigation and probably curettage, and properly drained with tubular drainage—in other words, if the infected tract has been repeatedly and rigidly treated as we would an infected amputation stump, and the symptoms do not yield in three days, we may suspect extension to structures which can not be reached by such measures. We have to deal, in all probability, with a true septic infection. Combined with such rigid local treatment as has been indicated, free purgation by mercurials and salines should be practiced. The septic infection once extended to deeper structures, the living tissue invaded by pathogenic organisms may yet prove amenable to less radical measures than hysterectomy. This depends more upon the course of a given case than upon any treatment that has been pursued. I have seen such a case after ten days, marked fever (the birth tract having been purified six days before) terminate in a lymphatic abscess about the cervix, which being incised *per vaginam* and drained, the patient rapidly and completely recovered. Again, I have evacuated such collections of pus about the cervix, but the temperature and all symptoms have progressed, sepsis continuing. Such a case is almost certainly one of the formation of subperitoneal uterine abscesses, and demands hysterectomy for its relief. In rarer cases there may be tubal involvement as well. We must conclude, then, that the time for hysterectomy in true puerperal infection is after thorough local and general treatment has failed to stay the progress of the disease. If successful, the non-operative treatment will arrest the disease in three days. If the birth canal is purified by mechanical means, antiseptics, tubular draining of the uterus, and the symptoms persist or become more grave, the question of hysterectomy must at once be considered. Every day lost after this status of the case is reached greatly imperils the life of the woman and diminishes the prospect of success from an operation. From what has been said concerning the morbid anatomy of cases requiring hysterectomy, I believe most surgeons would advocate the



vaginal method as the safest way to deal with the majority of such cases. In the two cases of acute puerperal infection that I have subjected to hysterectomy a different procedure has been employed, but, guided by the experience of these two cases, I would now under similar circumstances do a vaginal hysterectomy.

CASE I.—The first of these cases was in a primipara aged twenty-four years. I saw her in consultation nine weeks after her confinement, which had necessitated the employment of instruments. The cervix was much lacerated; the posterior wall of the vagina, about one inch below the external os, contained the cicatrix of a vertical tear some two inches in length. There was also an incomplete tear of the perineal body. Fever developed in this case on the third day. Local treatment by antiseptic irrigation was practiced; sepsis had been continuous and progressive. When I saw her there was great emaciation, some fever, morning temperature  $97^{\circ}$  to  $99^{\circ}$  F., evening temperature  $103^{\circ}$  F., heavy night sweats, pulse 130 to 150 and thready, abdominal tympany and tenderness, alternating constipation and diarrhoea—in short, a typical picture of profound sepsis. Locally there was an offensive discharge of pus and fæcal matter. Examination revealed a torn perinæum about healed; a large, fluctuating sac in the recto-vaginal interspace; a small, soft, fluctuating point in the right side of the cervix; a discharging sinus still farther to the right of the cervix in the vaginal vault; the uterus could be felt distinctly enlarged. The abscess between the vagina and rectum was opened freely, the cervical phlegmon incised, and all together, with the uterine cavity, freely irrigated with mercuric chloride (1 to 2,000); drainage by antiseptic packing. Stimulants and iron had already been prescribed in what seemed to me to be the proper way. This treatment was faithfully persevered in for ten days, the wounds being cleansed and irrigated twice daily. No improvement in any of the symptoms followed. It was a fearful thing to contemplate, much less advise, a hysterectomy in a patient so advanced in sepsis and so thoroughly bad from an operative standpoint, yet it was advised as a last resort, and accepted.

Operation was performed on February 16, 1895, eleven weeks after confinement. I selected the combined abdominal and vaginal method, for I suspected extensive tubal and broad-ligament disease. The operation was completed in fifty minutes. The specimen which I exhibit to you displays the pathological changes found, except that I wish to say in making the abdominal incision I encountered a quantity of green pus between the peritonæum and fascia, which had dissected subperitoneally from the cervix anteriorly by the neck of the

bladder and above the pubes. The interior of the peritoneal sac was smooth, and without adhesion of any of its surfaces. The uterus was removed by ligating the ovarian arteries and clamping the uterine arteries and lower portion of the broad ligaments from below with a single pair of light forceps on either side. The uterus was delivered above, as pus from the first incision had already defiled the peritonæum. Liberal through irrigation from above, and drainage made with gauze *per vaginam*, were practiced. After closing the peritonæum above, the lower abdominal wound was packed with gauze. The patient left the table with a pulse of about 160, and it remained around this point, varying from 148 to 174, for six days. After this there was gradual improvement for a week, the pulse going as low as 120. The vaginal wound did fairly well; the peritoneal wound healed without the slightest evidence of peritonitis; the abdomen remained flat; the bowels moved freely in their efforts to eliminate septic material accruing from other storehouses. During the latter part of the second week evidences of metastatic infection developed; the blood was so charged with septic matter that the irritation produced by hypodermic needles was sufficient to cause localization of pathogenic bacteria and abscess formations. A small pulmonary abscess developed, which ruptured in the bronchus, giving rise to a most horrible odor. This complication, however, seemed well-nigh overcome by the vital resistance, when, in the third week after operation, constitutional pre-existing blood sepsis continuing, signs of cerebral infection became manifest, and death closed the scene March 6th, eighteen days from the date of the operation.

While this case terminated fatally, it was most instructive. It contained much of the pathology of progressive puerperal infection, illustrating in a most beautiful way the uterine lesion with multiple uterine subperitoneal abscesses. It is also instructive as leading us to believe that if such cases are operated before the blood is irreparably charged not only with toxic ptomaines, but pathogenic bacteria as well, there is a very good prospect of recovery. Our methods are adequate to stay peritonitis, even in the presence of vast quantities of very septic pus, provided such pus is in contact with the peritonæum for a short time only.

CASE II.—Lady aged thirty years, second confinement. She was delivered April 22, 1895, by forceps. Three days after confinement there was a slight chill, followed by fever, temperature reaching 103° F. A vaginal douche and purgatives were administered. The fever did not decline, but I was informed reached 104.5° F. several times

during the subsequent week. There was considerable abdominal distention and pain. Under large and frequently repeated doses of saline cathartics, combined with local treatment by irrigation, the temperature subsided, being marked by normal temperature in the morning, evening temperature  $101^{\circ}$  to  $102^{\circ}$  F.; distention greatly diminished; very slight purulent vaginal discharge. This was essentially the condition of the patient at the time I first saw her on May 14th, or twenty-two days after delivery. An examination revealed a small cervical phlegmon in the right side which had broken into the vagina and was discharging; the uterus was perceptibly enlarged and inclined toward the right, giving the appearance of a mass in that side. Thinking the process of involution had been arrested by septic infection, and that the lower cervical phlegmon not draining properly might account for the symptoms, I curetted this thoroughly, irrigating the uterine cavity with an antiseptic solution, with the implantation of a tubular drain in the uterus. The symptoms were not relieved by this practice; *per contra*, the next ten days showed a varying temperature, with progressive asthenia; the evening temperature would occasionally rise to  $103^{\circ}$  F., followed by a profuse sweat at night, the morning temperature occasionally subnormal. The clinical picture presented by this case seemed to me most typical of Case I as I learned it from the attending physician. I felt sure that the condition of progressive yet slow sepsis was going on in the deep uterine tissue, and that in all probability the formation of just such phlegmons as occurred on the cervix and broke into the vagina was taking place beneath the uterine peritonæum. My experience in the first case led me to urge hysterectomy as offering the only prospect of recovery. This alternative was accepted both by consultants and the patient.

The operation was performed May 26th, five weeks after the birth of her child. The patient was much emaciated, presenting a picture of continued sepsis; the pulse ranged from 110 to 138. I thought it more than probable there was extensive tubal involvement, and selected the abdominal route. The uterus was removed by ligating the broad ligaments and a complete enucleation with the exception of the merest ring of cervix. Some difficulty was encountered in separating the uterus from the bladder on account of extensive pericervical and perimetral inflammation. The small portion of cervix was completely divulsed, and after most liberal irrigation poured through from above, a gauze drain, well impressing the broad-ligament stumps, was carried through into the vagina. The peritoneal flaps were approximated by a running silk suture and the abdomen closed without drainage. Her

convalescence was not an easy one, the pulse ranging as high as 170 on the second morning following the operation. The septic broad-ligament stumps suppurated freely through the vagina, but did not impress the peritonæum above, this structure remaining intact and unirritated; the bowels moved liberally and freely when called upon to do so. After the second week convalescence was steady, and, except for the slight debility which would naturally follow so severe a septic infection, the patient is now well. The specimens which I show you reveal one large subperitoneal uterine abscess on the right side, with evidence of other smaller ones throughout the uterine tissue. As in Case I, this abscess when viewed from above looked very much like a neoplasm. There was limited disease of the right tube which had not gone on to suppuration. There was no adhesion of the peritoneal surface within the pelvic cavity.

*In Conclusion.*—1. From our present knowledge of the causation and nature of puerperal infection, we may say it is largely a preventable disease.

2. When occurring it is of the greatest importance to differentiate between puerperal intoxication or invasion of a piece of putrescent placenta or blood clot by saprophytic germs, and true septic infection or invasion of living cells by pathogenic bacteria. Puerperal sapræmia, though in many cases producing the most alarming symptoms, is usually amenable to energetic treatment by curettage, antiseptic irrigation, and satisfactory tubular drainage of the uterine cavity.

3. True septic infection should be treated by sterilizing the birth canal at the earliest possible time, free elimination by purgation, and the prompt evacuation of superficial abscess accumulations about the cervix. Such a course may save the patient from more radical measures.

4. The chief differential points between puerperal intoxication and true puerperal infection are the comparative absence of pain, tympanites, and abdominal tenderness, and the more sudden onset and severe character of the symptoms in puerperal intoxication. Hysterectomy as a primary measure is never justifiable in septic intoxication, and when necessary it can only be after the mixed or secondary infection which may follow in the track of a primary sapræmia.

5. Progressive involvement of the deeper structures, as evidenced by daily elevation of temperature—probably 103° F. in the evening and subnormal in the morning—together with night sweats, scanty secretions, and ascending pulse, are indications for hysterectomy.

6. It is often impossible, from the involvement primarily of the

low pelvic structures, to make a bimanual examination which will reveal the true condition of the uterine appendages ; but, in view of the fact that these structures are not so prone to be invaded in the acute, violent type of the disease, vaginal hysterectomy should be the operation of selection.

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### A CASE OF EXTRA-UTERINE PREGNANCY.\*

BY J. T. HENRY, M. D.

Laura Crawford, negro, widow, aged twenty-eight years, mother of three children ; specific history negative. Though a widow, continued to indulge in sexual relations. Menstruated December 25, 1894. When the period should have come on in January, 1895, she had exposed herself on the wet ground and caught a cold. This was thought to be the cause of the cessation. In March she began to have pains in the small of the back and a sense of weight in lower abdominal region. About April 15th she began to flow again and very copiously, which was attended with colicky pains which were very severe. Dr. W. B. Cox was called to see her, and gave her ergot for the flow, which checked it, but the pain and the dead weight continued. She became also very constipated. Dr. Cox was called again May 10th, and on examination found the uterus very much displaced forward but empty. He diagnosed a tumor. The patient being very destitute, she was recommended to go to the poor house, where I first saw her May 20th.

After making an examination and weighing the history, extra-uterine pregnancy was suspected ; though not having seen such a case, I was by no means sure of the diagnosis.

After giving the patient all preparation that was possible in a South Carolina poorhouse, which consisted in having the bowels moved with magnesiae sulphas and a free use of soap and water on the outside, I operated May 28, 1895, with the assistance of Drs. Pryor and McConnell, a medical student, Mr. Lindsay, giving the ether. The patient's temperature was 102°, pulse rapid, and tongue was much coated and breath very bad when she went on the table.

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\* Read before the Southern Surgical and Gynæcological Association, November 14, 1895.



The abdomen was opened freely, and a large dark mass, nearly as large as the head of an adult, came into view. The uterus was crowded very much forward. The mass lay posterior to it, and very much adherent to the fundus posteriorly and to the promontory of sacrum. The fimbriæ of the right tube seemed to spread out over the covering of the mass. The mass was with some difficulty freed from its attachments, except that to the fundus of the uterus, and it was thought best to remove the uterus with it, which was done after tying and cutting the broad ligaments in the following way: A large needle armed with a large braided doubled-silk ligature was put through the uterus antero-posteriorly at what was supposed to be the internal os; the needle was cut out and each ligature embracing one half of the uterus; the amputation was made so as to leave the stump in a cup shape.

The peritoneal edges were brought together by means of interrupted silk sutures. The sack was ruptured early while breaking up the attachments, and a quantity of thick fluid escaped. It had the appearance of boiled starch mixed with chocolate, but was not offensive.

The fœtus was five inches long, and lay between the placenta and the uterus; cord attached to the left margin of placenta. The placenta was attached through the intervention of the thin outer layer of the sack to the sacrum, intestines, and omentum.

There was very little blood lost in breaking up the adhesions, as the circulation in the placenta and fœtal mass seemed to have ceased for some time previous to the operation; in fact, the line of demarcation seemed to have been established.

The abdomen was thoroughly washed out with sterilized water and closed without drainage. The temperature gradually went down, reaching normal on the fifth day; bowels were moved freely on the second day with *magnesiæ sulphas*, and kept moving with same.

Patient sat up on the fourteenth day, and was out of bed in twenty-five days. After she had been about for a week there was a dirty, bad-smelling flow from the vagina, but it readily subsided after the injection of hot water and borax. She has never had any more trouble up to this time, and has gained twenty-five pounds and makes a full hand in the field.

She informs me that sexual desire and gratifications are normal.

## SOME OBSTETRIC ACCESSORIES.

BY T. J. MCGILLICUDDY, M. D.

Surgeon-in-Charge of the New York Mothers' Home Maternity Hospital, etc.

A convenient portable hot-air bath is essential in the equipment of every hospital, and is important in the hygiene of every household. For this bath many advantages are claimed. Its dimensions are as follows: Height, four feet at the highest point; width two feet; length, three feet. It is made of very light yet strong material, and is an elegant as well as useful ornament for every bathroom. It is collapsible, thus adding to its convenience by taking up but little room when not in use. The width of space required is only four inches. The front and upper part is readily removable, and the head of the patient rests very comfortably at the neck opening, due to its sloping character. In the old-fashioned form the chin was disagreeably tilted backward. The portable hot-air bath has many advantages over the ordinary Turkish bath, and is much more healthful, as the air inspired is cool and refreshing. It permits of the temperature being raised to 160° F. or more. Towels soaked with cool water may be wrapped about the head of the occupant before or after entering it. After the hot-air or vapor bath the cold douche or cold sponging should be employed, followed by a thorough friction with the hands. The vapor baths may be simple or medicated, and the temperature, as in the hot-air bath, may be varied anywhere from 90° to 160° F. The usual heat is from 120° to 140° F. This hot-air bath is especially convenient for home use on account of its small size and simplicity, and is of great assistance to the physician in the treatment of the following conditions: Diseases of the blood, such as rheumatism and gout, of the lungs, heart, digestive organs, and skin.

In the pregnant woman suffering with albuminuria, where the urine is scanty, a milk diet well diluted with hot water, a free evacuation twice or even more times daily by a saline laxative enema, and free perspiration by the use of the hot-air bath, are indicated. Hot-air baths are especially to be commended in this disorder, as the increase of perspiration lessens the dropsy and tends to carry off from the blood any excrementitious matter retained in it through the kindey insufficiency. It is doubtful if any nitrogenous substances are eliminated in this way, and yet under certain conditions the hot-air or vapor baths often give great relief.

When the cabinet is to be used it should be unfolded and the sides



placed at right angles to the back. The head rest should be drawn tightly to the back frames until it sinks behind the two steel pins



Portable Hot-air Bath.

which hold it in place. A wood-seated chair is used inside the bath, and when placed in position the bather should sit at ease.

A foot pan with hot water is recommended for the feet ; if this is not used they should be placed on a stool.

The gas or oil heater should be placed beneath the vapor generator and the pipe passed through the hole in the side of the cabinet. This pipe conducts the heat under the chair seat. One pint of cold water is sufficient to put into the generator for a single bath, although it will contain two quarts. Use a small funnel for filling the generator.

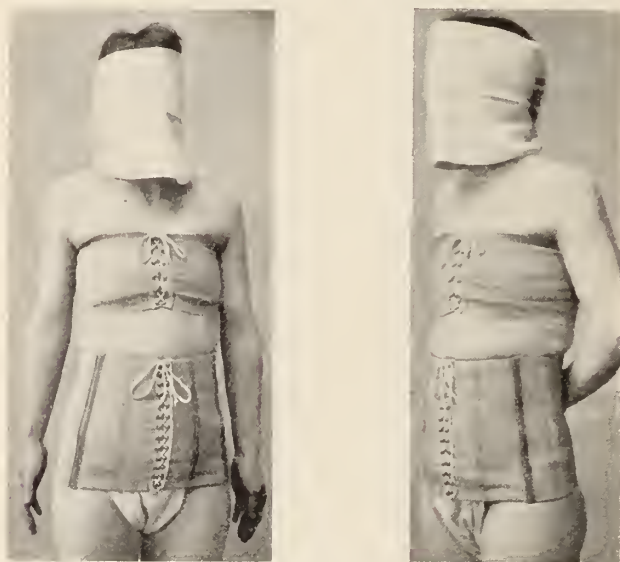
#### THE ELASTIC ABDOMINAL AND BREAST BINDER.

The obstetrical binder gives a great deal of comfort when properly applied, and there is a decided prejudice in its favor. Very many women consider its application the most important duty of the attending physician. They attach the greatest value to it as a means of lessening the size of a capacious or pendulous abdomen, thus preserving a comely figure.

Even where the physician thinks they are rather useless it may be politic to apply them if it pleases the patient. That they have any effect in restraining a tendency to relaxation of the uterus and consequent hæmorrhage is very doubtful. The elastic binder which I have devised has many advantages over the pattern bandage that never fits the patient, that is generally so thick that it is with the greatest difficulty a pin will pass through it, or the strip of muslin that stays in position for a few hours only and is often so unyielding and applied so tightly as to become a source of much discomfort. After a short time has elapsed following its application it is usually found wrinkled, feeling like a cord, and up under the breasts and axillæ.

The special advantages of the elastic abdominal binder are, first, it can be used before parturition to maintain the fœtus in a correct position. Where there is a tendency to transverse or irregular presentations, two small pads of flannel can be placed upon the abdominal wall on either side of the uterus, about two or three inches from the median line, to keep the fœtus in the corrected position. Version is useless in transverse presentations if the results of the manipulation are not maintained. Second, in cases of hernia uteri or abdominal prolapse their use is especially indicated, as they give the abdominal muscles time to recover tone under judicious curative exercise and they stop the abnormal stretching and weakening of the abdominal walls. They are also of use for their cosmetic or æsthetic value in improving the appearance and shape of the patient. This is not the least advantage, especially to the unmarried primipara. Instead of

the enlarged uterus maintaining a position at right angles to the spinal column, under the binder it is parallel to it. It probably also stops stretching of the attachments of the internal organs, such as the kidneys, ureters, and bladder. Patients speak of the comfort received, and those who previously complained of pain in the lumbar region say that the binder gives immediate relief. With the lacing a comfortable and correct amount of pressure can be maintained. In putting on the abdominal binder it can be laced first and pulled on up over the undergarments or over the skin itself, and removed in the same way, or it can be put on like a corset and laced afterward.



The Elastic Abdominal and Breast Binder. (Front and Side View.)

In mastitis, with or without sore nipples, the use of a thin elastic bandage will often prevent mammary abscess. Where there is a slight amount of induration of the breasts at the beginning of lactation, the application of the elastic binder should be very transient, otherwise it will cause a permanent suppression of the milk. Where the breasts are much overdistended and "caked," the elastic binder is easily and quickly applied. It needs no shoulder straps, as it will not slip, and requires no cutting of the neck and armholes, as in the ordinary jackets recommended. All that is necessary is to lace it in front or pin it with a few safety pins. The compression is continuous

and uniform, and it can be of a slight or pronounced degree as required. A small pledget of cotton or linen can be placed over the nipples if they are tender.

The special advantage besides its simplicity is that it does not become readily displaced by any ordinary movements of the patient.

In hypertrophy of the breasts, and where the milk is to be dried up owing to the death of the child, I know of nothing better. Its use in no way interferes with respiration as does the ordinary muslin binder when tightly applied. In women with very large breasts it causes a marked atrophy of these organs.



The Same. (Rear View.)

As an adjuvant to the use of the abdominal binder the abdominal muscles should be strengthened by exercising them daily in the following manner while lying down: After placing the hands behind the head draw the body to a sitting posture. While keeping the lower limbs rigid and extended, the exercise will tend to flatten and diminish the size of the abdomen and cause a decided hypertrophy of the recti muscles and markedly strengthen the others in the abdominal wall. I have had a number of these binders made by Mr. Dan, of 35 West Twenty-fourth Street, and the expense is trivial.

## A CASE OF UNDESCENDED OVARY AND TUBE, WITH SACTOSALPINX PURULENTA PROFLUENS.\*

BY M. L. HARRIS, M. D.,

Professor of Surgery, Chicago Polyclinic.

Mrs. D., from a neighboring State, came to me in February, 1895, and gave the following history: Age, thirty-seven years; American, widow. At the age of thirteen years she began to menstruate.

Menstruation was normal, with the exception that the pain was

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\* Read before the Chicago Gynecological Society, November 22, 1895.

always quite severe until her marriage at the age of twenty-six. She had a child one year after her marriage and a second one a year and a half after the first. No miscarriages.

She is a well-developed woman and, previous to her present trouble, always enjoyed good health.

Her illness dates back about seven years, when she was taken with severe griping pains in the abdomen, which was soon followed by vomiting.

There were two or three loose passages from the bowels, and then obstipation with considerable distention of the abdomen resulted.

The pain soon became localized in the right iliac region, where a distinct mass developed which was painful and tender, and which extended, according to her description, internal to and above the anterior superior spine of the ilium.

She had constant fever and was quite ill for about six weeks, when there was a sudden discharge of blood and pus *per vaginam*, after which she convalesced. She remained in fairly good health, with the exception of a little pain or soreness in the right iliac region upon exertion or straining, for about two years, when she had another attack similar to the first one.

These attacks recurred at varying intervals until the past year. For one year she has practically been ill all the time, having had five or six relapses during this time.

These attacks always began in the same manner. She had griping pain, gastric and intestinal disturbance, fever, swelling or tumor in the right iliac region, and was usually relieved by a discharge of pus through the vagina.

She had just recovered from one of these attacks when she consulted me. She was well developed, and physical examination was negative until the right iliac region was reached. Here a roundish, oblong mass was distinctly palpable. Its long axis extended vertically and crossed a line connecting the anterior superior spine of the ilium with the umbilicus. About one third of the mass lay above this line and the remaining two thirds below it.

Bimanual examination showed the uterus to be normal in size and mobility. No exudates could be felt in the pelvis. The vaginal wall was everywhere free, and no cicatricial tissue or adhesions were discovered, such as one would expect to find where an abscess had repeatedly discharged itself through this channel. As there was no discharge of pus at the time of the examination, and as the patient

had not been seen at the time the discharge occurred, its exact point of exit could not be determined.

The absence, as stated above, of cicatricial tissue or adhesions about the vaginal walls made it probable that the discharge came through the uterus from the Fallopian tube. The occurrence, however, of a pyosalpinx or sactosalpinx purulenta which periodically discharges its contents through the uterus is extremely rare, and according to Martin, of Berlin (*Die Krankheiten der Eileiter*), the very few cases which have been reported recovered without operation. The clinical history, as given by the patient, corresponded very accurately with the history of chronic relapsing appendicitis. The periodical discharge of pus from the vagina seemed to favor a sactosalpinx purulenta profluens.

The mass corresponded so accurately in location and outline to such as are frequently felt in cases of chronic appendicitis, and the total absence on bimanual examination of pathological products in the pelvis, induced me before the operation to make a clinical diagnosis of chronic relapsing appendicitis.

A straight incision, such as is usually employed for the removal of the appendix, was made parallel to the right border of the rectus muscle and directly over the mass. Upon opening the abdominal cavity the cæcum presented and was raised upward and displaced outward, thus bringing into view the appendix, which was quite diminutive in size. It measured but about three centimetres in length, was perfectly normal in appearance and free from adhesions.

It lay directly on the mass, which proved to be the right ovary and distended ampulla of the Fallopian tube. The mass presented the usual appearance of a sactosalpinx purulenta.

The dilated tube embraced the anterior surface of the ovary, and was firmly bound to it by adhesions.

The entire mass lay above the iliac vessels and entirely outside of the true pelvic cavity. The ovary rested on the psoas magnus muscle, its upper limit being opposite the bifurcation of the abdominal aorta.

The attachment of the ovary posteriorly, corresponding to the ligamentum infundibulo-pelvicum, was rather broad, and extending externally became continuous with the internal layer of the ascending mesocolon, and superiorly with the inferior layer of the mesentery of the lower end of the ilium. The ureter descended posterior to the ovary, and entering the pelvis, followed its usual course.

The ovarian artery entered the infundibulo-pelvic ligament at the superior and internal angle, and the pampiniform plexus spread out



posteriorly and internally. The ovary was about normal in size and appearance and had no corpus luteum.

The ampulla of the tube was dilated to the size of an adult thumb and measured about eight centimetres in length.

The isthmus was much longer than normal, and extended across the pelvis to the uterus, which occupied its normal location. There were no adhesions about the cæcum, but this organ did not descend quite as low as usual. The left ovary and tube occupied their normal location.

The right ovary and tube were ligated off in the usual way and removed. The patient made an uneventful recovery.

This case presents two points of interest :

1. An undescended ovary and tube.
2. Sactosalpinx purulenta profluens.

As is well known, the ovaries and tubes in the embryo at first extend high up in the abdominal cavity, reaching as high as and even being overlapped by the lower end of the lungs. From this high position they gradually descend during the process of development until they reach the position within the true pelvis which they are found to occupy in the adult.

This so-called *descensus ovariorum* is not an active process on the part of the ovaries and tubes, but is due rather to a more rapid or, perhaps better, a disproportionate development of the other neighboring parts of the body, until at the end of the developmental period, and the rearrangement of the relations of the various organs, the ovaries and tubes are found to occupy a much lower position and one farther removed from the mid-line than at the beginning.

An arrest of development of neighboring parts, or the persistence of early forms, or the presence of unnatural adhesions of the ovary or tube, may lead to an arrest of the movements of these bodies at any point of their course, and thus bring about the condition of non-descent.

That the ovaries may be arrested in their descent at any point is a statement made by almost all authors treating of these organs; but it seems to be, like many another statement, simply copied and handed down from one author to another without any one producing evidence in the shape of a detailed case to support it.

The literature of this subject may practically be said to begin with the excellent monograph by Puech on *Anomalies of the Ovaries*, published at Paris in 1872. Unfortunately, the original of this valuable paper was inaccessible to me, but from abstracts of the article



found in the *Rev. des sciences méd.*, 1873, Virchow's *Jahresbericht*, 1873, and the *Dict. des sciences méd.*, we learn that it contained the complete literature of the subject up to that date (1872), with a detailed report of all recorded cases.

These—some thirty-eight in number—are mostly anomalies of number, size, etc. Two cases, however, by the author himself, are anomalies of location, the ovaries being arrested in the lower lumbar region similar to the case here reported, and to which Puech gave the name ectopie lombaire.

While this article may be said to begin the literature of the subject, it may likewise be said to practically end it, as little that is new or original has appeared since it. In quite an extensive review of the literature since 1872 I have been unable to find the report of a case similar to this.

Bland Sutton (*Brit. Gynæcol. Jour.*, 1887-'88, vol. iii, p. 372) reports a case of non-descent of the ovary in an infant with spina bifida which survived its birth but a few days.

The abdominal cavity presented evidences of extensive peritonitis, loops of small intestine were glued together, and the descending colon lay high up under the liver, firmly adherent to the ventral aspect of the right kidney.

The right ovary and tube were firmly fixed by stout adhesions just below the crest of the ilium.

Sutton suggested that perhaps the arrest of descent of the colon may have been instrumental in arresting the descent of the ovary.

This is the only case which I was able to find detailed, which will indicate somewhat, perhaps, the rarity of the condition.

The second point of interest, the occurrence of a chronic purulent inflammation of the Fallopian tube, giving rise periodically to symptoms of acute peritonitis which disappear coincidently with a discharge of pus from the genital tract, is likewise rare; while the combination of an undescended ovary and tube with sactosalpinx purulenta profluens I have not been able to find heretofore recorded.

459 LA SALLE STREET.

## TO CONTRIBUTORS AND SUBSCRIBERS.

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## EDITORIAL.

### A RETROSPECT AND AN ANNOUNCEMENT.

At the ending of one and the beginning of a new year, it is the wise custom of all men to take a retrospect of obligations fulfilled and an inventory of those still to be met as well as of new ones to be undertaken. We think, then, it will not come amiss, at the beginning of both a new year and of a new volume, if we, in company with our readers, glance through a *résumé* of the work we have accomplished in the year just past and compare this with our promises made from time to time during the JOURNAL's career. Let us see how we have fulfilled these pledges. When we have satisfactorily settled this, we naturally reach a point where we may outline our proposed work for the year just begun and thus emphasize the improvements contemplated, by which the JOURNAL will become, as is ever our aim, still more valuable and attractive to our readers.

In our first announcement on the "Aims of the JOURNAL," made in the November issue, 1891, we said: "Our work is designed to give to the medical profession a monthly journal of the highest grade in all its departments." How far have we advanced in this fulfillment? In regard to the amount of reading matter, the JOURNAL has been increased from sixty-four pages—its first number—to one hundred and twenty-eight, the size at which it has remained regularly for the past two years. In individual numbers, as occasion required, this size has been much increased, as in the June issue of 1894 which contained two hundred and twenty-four pages and that of June, 1895, which

consisted of three hundred and three pages—the largest single number of a medical journal ever published. In regard to the quality of the matter presented to our readers, we will merely call attention to the fact that we now have the exclusive right to publish the official transactions of the three acknowledgedly most important and representative monthly societies which are connected with gynæcology and obstetrics in this country, viz. : The New York and The Philadelphia Obstetrical Societies and The Chicago Gynæcological Society. These insure to our department of original communications the most mature and scientific papers of the most active and prominent specialists in the three foremost medical centers of America and necessarily attract the contributions of equally prominent writers from other cities and other countries.

Our Editorial department has always received our unflagging care, because it brings us into closest touch with our subscribers and the profession generally, and its policy has been a definite and constant one. We have not sought to impress our personal views in regard to any line of treatment or new method of operating though, when these were forced upon our editorial attention and contained a distinctly ethical question, we have not hesitated to maintain our position in unequivocal language. But the chief purpose of our editorials has been to ask our readers to consider with us those subjects about which we are all agreed—the great ethical truths which underlie and must sustain all our actions as medical men, but which we, in the rush and competition of practice, are apt to overlook, at times, in their personal application. It is against the ethical abuses which thus creep in from time to time that we have directed our honest efforts, confident in the support of our readers owing to the truths we maintained and the sincerity of our position.

Our Review department has constantly improved but it is still far from the point of excellence to which in the coming year we confidently expect it to attain.

In the Abstract department the most noticeable improvement has taken place. We have constantly increased its scope, until now from fifteen to twenty or more pages are monthly devoted to the important subjects of American and foreign advance in the specialties of gynæcology, obstetrics and pædiatrics. These abstracts are all taken directly from the original articles themselves. In regard to the foreign ones, these are first translated carefully into English from the original tongues and then still more carefully abstracted, so that our readers may have not only the opinions and work of our transatlantic

brethren accurately presented to them but that they may have them also, so far as an abstract may do this, *at first hand*.

These are the promises which we have, at intervals, made to our contributors during the past four years. How have we fulfilled them?

But it is less in the fulfillment of the promises made, that our greatest satisfaction lies, than in the realization of the hopes and aspirations which came permanently to abide with us when we first offered this JOURNAL to the support and encouragement of our fellow-practitioners. It is this word, "fellow-practitioner," which has been the keynote and the guiding principle throughout the life of this JOURNAL, from its inception to the present hour. We determined to give to the medical public a journal owned and exclusively directed by medical men, medical not merely in name but in fact—owners and editors who should not forget that they were also medical practitioners. To us, therefore, the application of the Golden Rule, where our contributors and subscribers have been concerned, has not been difficult. We determined that this magazine should become the very best possible exponent of medical journalism, if it lay in our power to make it so, but we were equally determined that its financial success should never cause us to forget that we were primarily medical men working heart and soul in the interest of medical men. We were naturally aware that sentiment alone, however honorable and just, is not sufficient to support the life of any project in this world, and we were fully aware that the more valuable we made our JOURNAL to our readers, the more valuable financially it would become to ourselves; but it would have been much easier and have demanded far less sacrifice to have given our subscribers as little as we could for as much money as we could get, until forced by competition little by little and grudgingly to give more—in a word, to have conducted the JOURNAL from the outset on a purely commercial basis. Had we felt at any time that no choice was left us but to accept this purely commercial basis or to sacrifice the JOURNAL, we would have unhesitatingly accepted the latter alternative, for we would have lost our interest and thereby our stimulus to work.

We believe that sentiment, strong and properly directed, is the most powerful and enduring lever in the affairs of men; we acknowledge that sentiment has been the guiding factor in the conduct of this JOURNAL: let medical men consider and ask themselves whether their position as contributors and subscribers to American medical journalism has been bettered or the reverse, in the past year or two, by this fact.

Our readers may rest assured that in the year just begun every department shall be steadily improved: its size shall be enlarged and its scope widened. It shall be our endeavor to present in abstract the most important gynæcological articles which appear in our foreign contemporaries, within the shortest possible interval after their publication abroad. We expect very shortly to have this department so perfected, that every one of the nine or ten nations in Europe will be represented every month by the abstracted works of the most prominent men in each and, although more space shall be allotted to the representatives of those countries where the most active work suggests the greatest advance, other countries less generally active shall not be overlooked but shall be represented by their representative men, that a salutary universal comparison may thus be instituted and the title of our abstracts may be in the fullest sense "The Status of Gynæcology Abroad." This same policy shall prevail in the other abstracts of Obstetrics and Pædiatrics from foreign sources.

The number of original articles in each issue as well as the reviews will be largely increased and, in addition to the transactions of the three important societies which will promptly and regularly appear each month, we will also publish from time to time the proceedings of the more important annual or national societies. All this will necessitate the enlargement of the JOURNAL, which will, therefore, contain each issue from eight to sixteen pages more material—and this without increase of cost to our subscribers.

Other valuable additions to the JOURNAL's efficiency, which we are preparing for the coming year, will be announced when completed.

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## REVIEWS.

AN AMERICAN TEXT-BOOK OF OBSTETRICS FOR PRACTITIONERS AND STUDENTS. By JAMES C. CAMERON, M. D., EDWARD P. DAVIS, M. D., ROBERT L. DICKINSON, M. D., CHARLES W. EARLE, M. D., JAMES H. ETHERIDGE, M. D., HENRY J. GARRIGUES, M. D., BARTON C. HIRST, M. D., CHARLES JEWETT, M. D., HOWARD A. KELLY, M. D., RICHARD C. NORRIS, M. D., CHAUNCEY D. PALMER, M. D., THEOPHILUS PARVIN, M. D., GEORGE A. PIERSOL, M. D., EDWARD REYNOLDS, M. D., and HENRY SCHWARZ, M. D. RICH-

ARD C. NORRIS, M. D., Editor. ROBERT L. DICKINSON, M. D., Art Editor. Published by W. B. Saunders, Philadelphia.

This the latest of the American text-books not only maintains the previous standard of the series, but surpasses all of the volumes that have preceded it. The rapid advances that have been made in the science and art of obstetrics is indicated by the number of excellent books that have recently appeared. For the most part they have been devoted to the study of dystocia or obstetric surgery, or have been revisions. The present volume, however, is an entirely new work, arranged according to a new plan, is an exposition of the latest ideas of the greatest American obstetricians, and is got up in an elegance of style that to our knowledge has never before been attempted. In order to make a teaching work for students and a guide for practitioners, the authors selected are those who possess experience gained in the lecture room and in the hospitals. While these authors have been assigned special subjects for discussion, the subject matter has been so arranged with regard to consistency and logical sequence of ideas that a harmony is produced that is rarely found in composite publications.

For systematic and convenient arrangement of subjects, for lucidity and brilliance of illustration, this work is unsurpassed.

Dr. Dickinson, who assumed the entire management of the art department, has given us a wealth of the most artistic and accurate illustrations that ever appeared in a text-book. The colored plates and half tones, nearly nine hundred in number, are wonderfully effective. The figures are systematically drawn to scale, and in sagittal sections the same half is always shown for ease of comparison and the labeling is made directly upon the drawing. These points are sure to be appreciated by the student. The volume is nothing if not æsthetic. Each patient, whether having a neat breast binder applied or reclining in Trendelenburg's posture; even the fœtus, when his limited space or the pressure of the forceps will permit—the doctor, with true artistic instinct, has made them one and all "look pleasant."

The sections upon anatomy and embryology are made unusually attractive and interesting. The description of the perinæum, illustrating the importance of the levator ani muscle, and the study of the lymphatics connected with the internal organs of generation, are especially deserving of praise.

In the second section—Physiology of Pregnancy—over one hundred pages are devoted to embryology. These are clearly written,



and can be read and comprehended much more easily than is usually the case with this subject. The changes in the maternal organism induced by pregnancy are then considered. This is followed by a chapter on the diagnosis of pregnancy, and under the same heading is included the diagnosis of extra-uterine gestation. This seems a very logical arrangement and will serve to keep the possibility of ectopic pregnancy in the mind of the obstetrician.

The study of the pathology of pregnancy seems exhaustive. Dr. Kelly's contribution on extra-uterine pregnancy, with a description of the technique of the operation for its relief, is particularly fine.

The diseases of the fœtus and newborn infant are given separate sections and are discussed at greater length than is usual in obstetrical works.

The conduct of normal labor, by Dr. Jewett, is all that could be desired and is in keeping with the other writings of this author. Instruction is given with an accuracy and minuteness of detail that is admirable. The practical rules for disinfection are very good, and we are glad to note the stress that is laid upon the most essential step in the cleansing process—the soap-and-water scrubbing—and also the attention that is given to “antiseptics in the use of the catheter.”

The writer advises delivery with the patient in the lateral posture. Of episeiotomy he says: “No method yields better results for the ultimate integrity of the perinæum when rightly timed and properly executed. The ultimate condition of the pelvic floor after episeiotomy correctly performed is even better than after many natural deliveries in which the parts escape rupture. The tonicity of the structures frequently remains as perfect as in the non-parous woman.” The directions given for the repair of the lacerations of the pelvic floor are very explicit.

In the hundred pages that follow, the mechanism of labor is ably and scientifically treated by Dr. Reynolds.

Dystocia is discussed at great length by Dr. Hirst. Every known pelvic anomaly and impediment to delivery is considered and in most instances illustrated.

The study of the puerperium is divided into four sections: I. Physiology of the Puerperium. II. Diagnosis of the Puerperal State. III. Management of the Puerperium. IV. Pathology of the Puerperium. The first three sections are intrusted to Dr. Jewett and are treated in the characteristic manner of this able writer. The diagnosis of the puerperal state is seldom mentioned in text-books.

Puerperal Infection is a scientific and masterly contribution by

Dr. Garrigues. No one could be more eminently fitted to discuss this most important subject in an American text-book than the man who first introduced in America bichloride of mercury as a preventive and curative agent in midwifery, which was practically the application of the principles of antisepsis. The author relegates to the past the term "puerperal fever" to accompany "dropsy," "lung fever," etc., and objects to "puerperal septicæmia," because its limits are both "too narrow and too wide." He prefers the expression "puerperal infection" to designate the diseased condition produced by infection during pregnancy, childbirth, and the puerperal state, because that term includes both mild and serious cases and local and general disturbances. The writer firmly believes in the possibility of the transmission of the morbid agent in puerperal infection through the air in a limited space. The revolution in the results as to mortality from puerperal infection since the introduction of the antiseptic treatment in midwifery is too well known to require comment. This is shown, however, in some very interesting statistics.

The curative treatment of puerperal infection, the author admits, is much less effective than the preventive, yet the principles given are the best in the light of our present knowledge. The directions are most explicit, and the many formulæ are of great value. To every man who ever attends or expects to attend an obstetrical case this article is well worth his careful perusal.

The section devoted to obstetrical surgery is in keeping with the high standard of what has gone before and needs no further comment.

The volume concludes with a well-written and timely article on cœliotomy for sepsis in the childbearing period, by Dr. Hirst.

The qualities of the book that commend themselves most highly are the large number of accurate and beautiful illustrations, the careful avoidance of conflicting statements and the fullness and especial care which are given to directions for treatment.

The authors have not given a long list of procedures or remedies that have been suggested to combat a certain condition, but have stated lucidly and in detail that which they believe will best meet the indications.

Nowhere in the practice of medicine is it so necessary to have a book, a working guide, as in obstetrics, for at the present time comparatively few have had the advantages of practical training in this branch, and the majority are absolutely dependent upon literature for knowledge and guidance.

G. H. M.

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MANUAL OF CHILD BED NURSING. By CHARLES JEWETT, M. D., Professor of Obstetrics and Diseases of Children at the Long Island College Hospital. Bailey & Fairchild, Publishers.

This manual was originally prepared for the benefit of the Training School for Nurses at the Long Island College Hospital. It has subsequently been rewritten and adapted to general use. The aim of the author has been to aid the nurse in remembering the practical teachings of the hospital training. The book is eminently practical and very comprehensible. It should be of great value to nurses and could be read with benefit by the patients. Placed in the hands of patients, it would save the physician much in the way of explanations and directions and yet not for a moment convey the "every-woman-her-own-doctor" idea.

G. H. M.

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## TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, November 5, 1895.

The *President*, HENRY C. COE, M. D., in the Chair.

Dr. J. E. JANVRIN presented the following specimens with their histories :

*Uterus removed by Vaginal Hysterectomy on Account of Carcinoma of the Cervix.*

Mrs. K., aged forty-six years and the mother of several children, was seen by me in consultation with her family physician at Coopers-town, N. Y., during the latter part of July, 1895.

She had had considerable irregularity as to her menses for six months and some local pain. The uterus was enlarged and retroverted, the cervix lacerated. The two last menstruations had been quite profuse. I suspected carcinoma, and advised a thorough curettage of the endometrium and the removal of sufficient tissue from the cervix for microscopical examination, and also the repair of the cervix.

Dr. Sill, the family physician, accordingly operated, and sent the

specimen removed from the cervix to Dr. William Vissman, of the New York Polyclinic, for examination. Toward the latter part of August Dr. Sill informed me that the specimen had been pronounced carcinomatous by Dr. Vissman. Early in September I had the patient brought to the city to the sanitarium, and I removed the uterus and appendages by vaginal hysterectomy on the 12th. This specimen has also been examined by Dr. Vissman, and while there is no carcinoma of the body proper, still that portion of the cervix which remained after the operation performed by Dr. Sill in July shows carcinomatous infiltration. It therefore was simply a question of time (and a short time at most) as to the extension of the disease to the body itself. I feel warranted in saying that the prompt removal of the uterus and appendages will give entire exemption from further progress of the disease in the pelvic region, and the patient will remain cured. This case to me is one in which vaginal hysterectomy was absolutely demanded and performed at just the right time.

*Carcinoma of the Uterine Body.*

Mrs. P. F., aged seventy-two years, who had had several children in her early married life, was seen by me, in consultation with Dr. Robert A. Murray, on October 13, 1895. She had been somewhat of an invalid for the past year. Had a very offensive muco-purulent discharge, stained with blood at times, and considerable pelvic pain. Dr. Murray had seen the patient a few days before, and, on account of some contraction of the upper portion of the vagina, had begun its dilatation with tampons. When I saw her the vagina was well dilated, and there was no difficulty in diagnosing the case as carcinoma of the uterine body. The left broad ligament was shortened and thick. Nevertheless, I advised immediate vaginal hysterectomy, and admitting the patient to the sanitarium, I operated on the 20th. On account of the short and "fixed" condition of the left broad ligament, I found some difficulty in controlling all the vessels with ligatures, and was compelled to apply three clamp forceps to the stump of that ligament. The patient has recovered rapidly, and I think will continue well and free from a redevelopment of the disease. In this case the question naturally arose (on account of the age of the patient) as to whether it was best to simply curette and cauterize the cavity of the uterus, or to remove the organ. I chose the latter, as giving the patient exemption for a good many months, and in all probability total exemption from a return of the disease during the balance of her life.

*Abdominal Hysterectomy for Multiple Fibroma.*

Mrs. A., aged forty years; never had child or abortion. Was seen by me in consultation with Dr. Sill at Cooperstown, N. Y., during the latter part of August. She had been an invalid for a year or more, suffering *great* pain during menstruation and quite severe pain nearly all the time. Had had menorrhagia nearly every month for a year, and was completely worn out. There was no difficulty in making out the fibroids and also an enlarged right tube. She was put under proper treatment for relief of her symptoms—hot douches, absolute rest, tonics, etc.—for a month, and early in October came to the city. I operated October 16, 1895, at the Skin and Cancer Hospital. She has made an excellent recovery, and is ready to return to her home. The mass is made up of four good-sized and separate fibroids and several smaller ones. The uterine cavity extends upward and toward the right to the depth of four inches. I amputated at the upper part of the cervix, leaving it entire and covering it with the peritoneal flaps. On the day of the operation, before being taken to the operating room, her temperature was  $100.5^{\circ}$  and pulse 110. Within six hours after the operation the temperature had fallen to  $99.5^{\circ}$  and never rose above  $100^{\circ}$  at any time during convalescence.

## DISCUSSION.

Dr. RALPH WALDO asked the members their experience with regard to the ultimate results of removal of the uterus for carcinoma. In talking the matter over with a number of men who had performed many hysterectomies for carcinoma, mainly for carcinoma of the cervix, they had told him that the more they operated the more gloomy such cases looked to them. In other words, the chances of complete recovery were very slight.

Dr. JANVRIN answered Dr. Waldo's interrogatory by saying that it would appear that his (Dr. Janvrin's) personal experience in the matter of permanent relief after hysterectomy for cancer had been more fortunate than that of most operators (if Dr. Waldo's statement was correct), for in the many cases which he had operated upon during the past twelve or fifteen years there had been recurrence of malignant disease in very few. Fully three fourths of the patients had remained well.

Dr. RALPH WALDO presented a specimen of

*Papilloma of the Right Ovary and of Small Cysts of the Left Ovary.*

The specimens I present to you were removed from a patient who gave the following history :

Mrs. R., aged thirty-two, married nine years, one child six years ago, one abortion, in July, 1895. Her family history is good and she has always been well till four years ago, when her present disease began. She has had pain varying in intensity in the right inguinal region, at times extending down the corresponding thigh. She has also noticed "a lump" in the painful region that increased in size during the menstrual flow ; menstruated every four weeks, three or four days at a time, at times painful ; no discharge from the vagina ; since the abdomen has been distended there has been more or less nausea and vomiting ; micturition frequent ; bowels constipated.

*Examination.*—A symmetrical abdominal tumor two inches above the umbilicus ; a slight sense of fluctuation. By the vagina, slight laceration of the perinæum ; bilateral laceration of the cervix, more marked to the left ; uterus retroverted and bound down by adhesions and its body pushed to the left ; left ovary slightly enlarged and sensitive.

*Operation* November 4, 1895 ; duration forty-two minutes. By abdominal incision a large cyst that had undergone papillomatous degeneration was removed that filled the pelvis and lower half of the abdominal cavity. A large piece of omentum (six by eight inches) was compressed between the anterior abdominal wall and the cyst, and as it was adherent to the tumor it was removed. The left ovary, which was twice the normal size, was removed together with its tube, which was the seat of chronic interstitial salpingitis.

The abdomen was closed by interrupted silkworm-gut sutures.

There was marked shock during the operation—in fact, the pulse was 130 when the ether was given ; otherwise convalescence has been perfectly good.

*Suspensio-uteri for Prolapsus.*

Dr. AUGUSTIN H. GOELET presented a specimen of an ovary with a small cyst attached which was removed from a patient, upon whom he had operated for complete prolapse of the uterus by suspension of the uterus from the anterior abdominal wall in the same manner as done by Howard Kelly for retroflexion.

The patient, Mrs. W., aged forty-eight years, was admitted to his



sanatorium in May, 1895, with a complete *procidentia uteri* of many years' standing. The uterus was very heavy and enlarged, measuring four inches, and there was relaxation of the vulvar orifice, with rectocele and cystocele. First an anterior and posterior colporrhaphy was done, and two weeks later the abdomen was opened and the uterus drawn up and suspended from the anterior abdominal wall in the following manner :

*Technique of the Operation.*—A small incision is made through the abdominal wall in the median line, low down, just above the pubes, and the fundus is lifted up and brought forward. The left flap of the abdominal wall is everted, and a needle threaded with medium-sized silk is inserted near the lower angle of the wound, including all the tissues of the abdominal wall except the skin ; then it is inserted on the posterior face of the fundus, including about one fourth of an inch, and penetrating about one eighth of an inch. The suture is then carried to the right flap of the wound at a point opposite that on the left. Another suture is inserted just above the first on the abdominal wall and about half an inch below the other on the posterior wall of the uterus. When these ligatures are tied, the first draws the fundus up and the second throws the uterus forward into a position of normal ante flexion. The abdominal wound is closed in the usual manner, preferably by uniting the peritonæum separately. As suspended thus, the uterus is at first close to the abdominal wall, but later it recedes, and the result is that it is suspended about an inch away, in a normal anteposition. It is not therefore fixed in an abnormal position, as is the case with the operation of ventrofixation.

The recovery in this case was uninterrupted and without complications, and the result is all that could be desired. The uterus at the present time occupies a normal position in the pelvis.

Another case of the same kind, operated a week ago, is doing nicely, there having been no elevation of temperature, and there is every indication that the result will be equally good. This patient is forty-six years old, and the uterus measures four inches. An anterior and posterior colporrhaphy was done at the same time.

Recently I have modified the technique so as to facilitate the operation and hasten it somewhat by attaching a needle to both ends of the ligature and inserting it first into the fundus and then into either side of the abdominal wall. This gives control of the uterus at once and avoids the insertion of a tenaculum, which might otherwise be necessary in some instances.

*Suspensio-uteri for Retroflexion.*

Dr. AUGUSTIN H. GOELET reported another case where *suspensio-uteri* was done for an otherwise incurable retroflexion, and showed a cystic ovary which had been removed from the same patient. The operation was done in the same manner as in the other cases reported when it was done for prolapsus.

The patient, Mrs. E., aged thirty-three years, married, had suffered for several years with severe pelvic pain, which was much intensified at the menstrual period, and which compelled confinement to bed during that time, and frequently during the intermenstrual period also. There was a sharp retroflexion, a chronic endometritis, and the left ovary was prolapsed, enlarged, and exquisitely sensitive.

The operation was done in May last, and at the same time the left ovary, which was found to be cystic, was removed. Curettement was done at the same time also. The patient made a good recovery from the operation and is now enjoying excellent health, being no longer troubled with the harassing pain which she suffered before. The uterus remains where placed by the operation.

## DISCUSSION.

Dr. GEORGE W. JARMAN said that, inasmuch as there was a space left between the uterus and abdominal wall, his personal view was that the operation was a dangerous one. While no untoward result might follow, yet it was always fraught with the possibility of a knuckle of gut getting between the uterus and abdominal wall and becoming strangulated. He had said on previous occasions that in all cases of ventral fixation the uterus should, in his opinion, be brought close to the abdominal wall. Dr. Jarman expressed preference for silkworm gut, and mentioned a case seen lately in which the uterus had remained close to the abdominal wall, the operation having been performed a year ago.

Dr. GOELET said that Dr. Kelly had reported forty or fifty cases, and the accident feared by Dr. Jarman had never occurred, nor did he believe it was likely to occur. One ligature lay in front of the other. The uterus is at first close to the abdominal wall, but later it recedes to the distance of about one inch. Dr. Kelly claimed that the ligatures became encysted, and he preferred silk.

Dr. J. R. GOFFE expressed surprise that Dr. Kelly was now doing the operation described by Dr. Goelet, for at one time he was a strong advocate of catching up the ovarian ligaments in anchoring the uterus.

He certainly would be much afraid of strangulation of the gut in suspending the uterus by a ligature reaching down an inch from the abdominal wall. The idea that such a ligature could become encysted seemed to him absurd. He believed that only by bringing the uterus up snugly against the abdominal wall would a permanent result be secured. He thought Dr. Goelet had entirely misunderstood the operation.

Dr. WALDO remarked that ligatures placed on pedicles of tumors, etc., were frequently found at some subsequent period in the bladder, alimentary canal, or other remote part, and he could not understand how the ligature suspending the uterus, as described by Dr. Goelet, could fail to cut out and travel, instead of becoming encysted.

The fact that Dr. Kelly had ceased to suspend the uterus by the ovarian ligaments was confirmed by Dr. Edebohls, and Dr. Goelet stated that Dr. Kelly had described his later operation at the meeting of the American Medical Association in May of this year. He then said that he had had occasion to reopen the abdomen in several of the cases, sometimes subsequent to the operation, and had found the sutures encysted and the uterus suspended by two artificial fibrous bands. Intestinal strangulation had not occurred in any of his cases. Those objections, therefore, were theoretical only. Dr. Goelet thought there was an advantage in suspending the uterus instead of anchoring it close to the abdominal wall, for in the swinging position it was not subject to jars and strains as it would be if it were fixed.

Dr. ANDREW F. CURRIER reported a case of

*Puerperal Septicæmia of Prolonged Duration and Many Complications.*

The patient was the wife of a physician in Westchester, N. Y., a primipara twenty-two years of age, and was taken in labor early in the morning of October 3, 1895. The first stage progressed normally until the os was moderately dilated, when an obstruction in the vagina (for which her husband, who was attending her, could not satisfactorily account) prevented further advance of the fœtus. A colleague, Dr. Deming, a man of excellent ability, was then called, who recognized a vaginal sæptum extending vertically from the vulva to the cervix, but unattached to the latter. This was divided, and labor was concluded without further incident, except that it was observed that the pulse-rate was 150 per minute, which seemed entirely out of proportion to the severity of the labor. On the third day there were well-marked evidences of sepsis. An intra-uterine douche was given, which was followed by severe abdominal pain and a very prolonged chill. High

fever, rapid pulse, and offensive vaginal discharge continued during the fourth and fifth days. I was called to see her on the afternoon of the fifth day, and found her with marked septic countenance. Temperature,  $103.8^{\circ}$ ; pulse, 140. The uterus was six inches deep and very soft, the broad ligaments indurated, and the vagina sloughy. The uterus was curetted and irrigated with hot bichloride solution (1 to 4,000). Pure carbolic acid was applied to the sloughing tissue of the vagina, and uterus and vagina lightly packed with iodoform gauze. The next day there was some improvement; small doses of calomel and large doses of brandy were given.

The following day, October 10th, the temperature was  $101^{\circ}$ , pulse 112, the bowels had moved freely, and there was a healthy granulating surface in the vagina. The uterus had contracted satisfactorily, and the discharge was no longer offensive. Uterus and vagina irrigated and packed with gauze.

October 11th.—Pain and friction sounds in right pleura. Irrigation of uterus by her physician, followed by severe chill. Temperature  $105^{\circ}$ , pulse 140.

12th.—Pain in right lung, with consolidation at base. Breasts full and hard; sweating and distressed countenance. Careful examination of pelvic organs showed nothing unfavorable; the diseased conditions in the original focus had to all appearances been brought under control. The breasts were ordered evacuated and supported with slings, and calomel by the mouth, in small doses.

13th.—In the morning great improvement was apparent. In the evening there was sudden change for the worse; temperature  $105^{\circ}$ , pulse 150, respirations 40. Ordered inhalations of oxygen, and internal use of digitalis, strychnine and nitroglycerin.

14th.—Same treatment, with some amelioration in the general condition, though the pulse hovered in the neighborhood of 150 per minute.

16th.—Fever shows descending curve. Pulse 130 most of the time. Dr. Janeway saw the case and gave a favorable prognosis.

19th.—Progress favorable in most respects. On the afternoon of this day the temperature reached  $104.2^{\circ}$ , pulse 134. Examination of the pelvis showed nothing amiss except sensitiveness and slight induration about the rectum. Quiniæ sulphas, gr. xxv, *per rectum*; oxygen every half hour.

24th.—General condition has been favorable in most respects since the 19th. Dr. Janeway suggested aspiration of the pleural cavity, and four ounces of foul-smelling pus were withdrawn. Later in

the day the pleural cavity was opened and four or five ounces more of offensive fluid, also clots of fibrin, were removed. The pleural cavity was irrigated and drainage-tubes inserted. Patient bore the operation well, and had a strong pulse of 120 per minute after being placed in bed.

26th.—Wound in pleura draining well, but symptoms of general sepsis continue. Several offensive diarrhoeal stools daily, throbbing pain on left side of head, left side of face bright red in color.

27th.—Nothing abnormal in pelvis, wound in pleura doing well, but afternoon temperature  $103^{\circ}$ , pulse 140. Possible involvement of left pleura.

28th.—Afternoon temperature  $102.2^{\circ}$ , pulse 136, dusky countenance, constant pain below and to right of right breast, abundant expectoration, and frequent cough. Urine albuminous, specific gravity 1008, quantity in twenty-four hours fifty-four ounces; very irritable and hysterical.

29th.—Decided improvement in all particulars.

30th.—A. M., temperature  $100^{\circ}+$ , pulse 130; P. M., temperature  $103^{\circ}+$ , pulse 140; very irritable; tympanites; great relief from turpentine enema; urine seventy ounces, no albumin; specific gravity 1010; no casts.

November 1st.—Temperature  $100^{\circ}$  to  $101^{\circ}$ , pulse 120 to 130, condition of chest nearly normal; drainage-tube removed.

2d and 3d.—Temperature  $103^{\circ}$  at about the same hour (3 A. M.) each day; 4 P. M., temperature  $102.2^{\circ}$ , pulse 130; countenance sallow; hysterical; moderate tympanites; sensitiveness and pain in muscles of left calf and left adductor muscles. Ordered Warburg's tincture, 3 iij, every six hours. Great tenderness over the spleen; frequent creeping chills along the spine.

5th.—Improvement since the use of Warburg's tincture was begun; 3 P. M., temperature  $100.6^{\circ}$ , pulse 126; no more chills; leg no longer œdematous and scarcely sensitive.

The question arises, Should the uterus have been removed when the patient was first seen on the fifth day? To my mind there is but one answer, and that a negative. Even if in so severe a case it could be done with comparative safety, the permanent sterilization of a young recently married woman must to me, at least, always appear a most distasteful operation from whatever standpoint it may be looked at. It is possible that there are cases in which it is justifiable or even imperative, but the limits for such operations should be restricted to the utmost.



It has been said that it should be done within the first week after delivery, if at all ; but in such cases as the one which is here narrated the migrating elements of mischief had already gone beyond the uterus before that limit was reached.

The diagnosis is to me still obscure. Whether the case is one of septicæmia *via* the lymphatics, of pyæmia with concealed abscesses, or of a modified malaria—for that disease abounds at present in the patient's vicinity, and she has suffered with it herself in the past—I do not know.

*The Indications, Technique, Pathology and Results of Curettage of the Uterus.*

DISCUSSION.

The PRESIDENT made a brief statement of the reasons for bringing this subject up for discussion. One was the fact that recent studies—in Germany especially—had shown some new features and new facts which might have an important bearing on the reason why in the past there had been so many failures to cure by curettage, why in other cases it had been necessary to repeat the procedure, etc.

*The discussion* was then opened with the following paper :

*The Anatomy of the Endometrium and the Technique of its Removal by Curettage.*

BY W. R. PRYOR, M. D.

(See page 10.)

Dr. WILLIAM M. POLK : Having arrived somewhat late, I heard only a part of Dr. Pryor's paper. The view which he takes of the lymphoid structure of the uterus has a very decided bearing upon the results which are to be attained by curettage and packing, and I will refer to that fact again.

The indications for curettage, it seems to me, are to be divided into those which relate to the acutely inflamed uterus and those which relate to the organ when it is chronically inflamed. I presume that our remarks are intended to apply entirely to the body of the uterus and not to the cervix, because there are measures of treatment for inflammations of the cervix which, I think, are accepted as better than mere curettage. But when we come to the body of the organ it is entirely different.

In reference to the application of curettage to the acutely in-



flamed organ I think there is a very wide difference of opinion. Here we must divide the cases into those of the recently pregnant uterus and the non-pregnant uterus. Regarding the former—the puerperal uterus—we must divide the cases into those in which the uterus is empty and inflamed after the first few weeks of pregnancy, and those in which the same condition exists toward the later months of pregnancy.

As to the acutely inflamed non-pregnant uterus, it seems to me that curettage is not indicated. There all that is needed is free escape of the offending material, and as that can be provided for properly, the curette should be avoided.

When we come to the recently pregnant uterus, it seems to me that curettage should be confined to the organ during what may be called the period of abortion—that is, during the first two, or perhaps the first three, months of pregnancy. By curettage I assume is meant scraping the interior of the uterus with an instrument. If it is intended to include under the term scraping the body of the uterus in any other manner—that is, by the finger—that would modify my statement.

This leads me to what I was about to suggest—namely, that whenever the uterus is large enough to permit of the easy introduction of the finger or fingers, and passing them over the entire surface of the organ, we can avoid using the curette in many instances. But if we find projections which can not be removed by the finger, then the curette may be employed, but it should be employed guided by the finger, in order to avoid injury to the organ whose structures are naturally soft, and which, owing to infection, are softer than usual.

The question as to what interference shall be instituted when in the later months of pregnancy the uterus has become infected has, I know full well, been discussed here several times, and there has been a good deal of difference of opinion among the members. I can only say that my own experience has led me to believe that all cases should be treated by the same cleansing method, but whether in addition thereto the uterus shall be curetted, even with the dull curette, may be questioned. But, if used, guide the curette with the finger.

Then we come to the chronically inflamed uterus, and that being the more common lesion I presume it really has a wider interest. I should say that the chronically inflamed uterus, which signifies endometritis and metritis, was one which called for the use of the curette, and by that I mean the sharp curette. Now, we would naturally expect that in the cases of chronic metritis, which may be grouped

under the term subinvolution, curettage would be more beneficial, at any rate more immediately beneficial, than in cases of chronic metritis which had gone on to induration and shrinking of the organ. But in both conditions curettage is, to my mind, beneficial, though more rapidly so in subinvolution, the result being obtained in the one instance within a month, in the other perhaps within two months. There can be no doubt but what the cases which give the poorest results are those in which, as a result of the endometritis and metritis, there has been sclerosis, shrinkage, and atrophy of the uterus as a whole. The changes seem to have advanced so far that even if you go over the interior of the organ with the curette once, twice, or three times, you will frequently be disappointed in the result obtained. The result is analogous to that which you find in senile atrophy.

I think you will find that cases of hypertrophic endometritis associated with induration of the organ in which hæmorrhage is pronounced—cases known as endometritis fungosa or hæmorrhagica—are least likely to yield promptly to curettage. There is a form which is dependent on gonorrhœa, with markedly purulent discharge, and in cases of that kind it is difficult to say how promptly you may get relief; but the trouble there is that the surface is likely to be reinfected in the manner suggested by Dr. Pryor. There, then, is a double question; but one repetition of the curettage will generally suffice to effect a cure if the disease has not extended and given rise to salpingitis and ovaritis.

Clinically speaking, wherever you find a case of large uterus with purulent discharge, or excessive menstrual discharge, no matter whether it be due to old retention of membrane or to hypertrophy of the mucous membrane without pregnancy having existed, or whether it be dependent upon the presence of a fibroid tumor, in all such cases your curette will be of the utmost service. In general terms, then, I think it may be claimed that in the various forms of chronic endometritis curettage is to be employed. But wherever you find that the uterus, with its lining membrane, has undergone atrophic change, you need not expect any very brilliant results. The disease which is producing the atrophy continues, and ultimately the discharge will cease of itself. It is for this reason that one frequently finds curettage fail to give the relief expected in cases of uteri deprived of their ovaries. We all know that in these cases the uterus will frequently—either because the tubes have not been entirely removed, or because of the atrophic change which begins after the operation—continue to discharge pus, muco-pus, or blood occasion-

ally for several months, sometimes even a year or longer, after the operation. And these are the cases in which I think you occasionally find disappointment, more particularly if there has been a mucopurulent discharge. Where you have a hæmorrhagic form of endometritis you are less likely to have trouble, provided the bloody discharge does not come from the stump of the tube.

I believe that in cases of chronic oöphoritis, and in cases of disease of the tubes of a certain kind (chiefly parenchymatous thickening), curettage, provided it is associated with something else, is not infrequently of decided benefit. But here we must differentiate the condition very carefully, otherwise we are likely to be greatly disappointed. I can make myself understood better by giving an illustrative case.

Take the case of a young girl who has a chronic endometritis and who after a while begins to complain of ovarian pain, and you make an examination and discover large ovaries, the tubes seeming to be entirely free. Often in curetting these cases you will get relief not only of the endometritis, but also of the trouble in the ovary itself. Then, again, you will find many cases of subacute salpingitis, or salpingitis not of many months' duration, fairly cured. In these cases there is infiltration of the uterus, but no induration and atrophy of the body of the organ. Such patients are frequently so far improved that they are contented with their lot, and escape a further operation.

We now come to the question how benefit results to an infiltrated uterus and to such distant organs as the Fallopian tubes and ovaries in curettage of the uterus. I do not believe that the full benefit is obtained unless you associate with the curettage some measure which will enable the uterus to deplete itself, such as packing with gauze. The organ is a lymphoid structure, as Dr. Pryor stated, and I do not presume that he intended to confine the proper lymph structure to the mucous membrane, for lymph spaces are found throughout the body of the organ and extending up to the broad ligaments and ovaries, and we find lymph structure far in excess of that found in most organs, especially during the period of pregnancy, when there is a tremendous increase. The thought has suggested itself to me that since infection probably extends directly through the lymphatic connection, the benefit which is derived from our treatment is through the same structures—that is, the curettage and packing which depletes the uterus may suffice, owing to the direct and abundant lymphatic connection of this organ with the appendages, to deplete these also. At any rate, it does this, and it is a mistake to assume that the

attack on the interior of the uterus is merely for the purpose of draining through the cervical canal. The drainage is not limited to emptying the cavity of the uterus into the vagina, but extends to the vessels—chiefly the lymphatic vessels which are found in the Fallopian tubes and ovaries. Therefore when we use the term drainage we mean depletion as well as drainage. The manner in which this depletion is brought about consists largely, it seems to me, in the uterine contraction which is set up, and which is a most active stimulus to the entire organ and its annexa.

Dr. J. RIDDLE GOFFE expressed his obligations to Dr. Pryor for his concise and instructive account of the latest views of the anatomy of the uterine mucosa, but said he differed from him somewhat in the technique of curettage. He had not found it necessary to incise the cervix, nor did he believe in using graduated sounds as dilators which tended to push the lining membrane before them and to elongate the cervix. He employed the steel dilator, then washed the uterus out carefully through the cervical speculum, using a glass tube small enough to allow a free outflow of fluid around it. He also packed the uterus through the speculum, for without it one was liable to simply pack the cervix. He preserved iodoform gauze in bichloride solution (1 to 500) and wrung it out in hot water when the time arrived for using it. To show the greater safety of gauze preserved in this manner, he mentioned two cases—one in which he packed the uterus after curettage with iodoform gauze sterilized by heat, assured to be reliable by the house surgeon at the Polyclinic Hospital. Next day, however, the temperature was  $101.2^{\circ}$ , and remained so until the following day, when the gauze was removed. Next day he curetted another case, the same conditions existing, except that iodoform gauze preserved in bichloride (1 to 500) was used, and in this case there was no rise of temperature. He had found this the rule where gauze was prepared in that manner.

Dr. Goffe also mentioned the case of a woman suffering from retained products of conception fourteen days after abortion, and since she was unable, because of her household responsibilities, to remain in the hospital, he told her to come in the morning, when he would clean out the uterus under anæsthesia and allow her to return in the evening, which he did, and she got along well. He thought it safer to allow her to go about with aseptic gauze in the uterus than with the retained membranes.

Continuing, he said: I wish to announce my opinion very emphatically that at no time in the history of gynæcology has there been

so efficient a therapeutic or surgical device presented—so rational in its conception, so simple in its application, and so beneficent in its results as this process of curettage.

The conviction that all serious pelvic complications in woman have their origin or their previous abode in the uterus indicates most positively that we are here striking at the very root of the disease, frequently interrupting it in its inception, and, in other instances, eradicating it from its well-seated position. The results of the treatment are health-giving to the great majority of these gynæcological cases and life-saving in many of the more serious conditions.

To specify more fully its results it is necessary to take up the various classes of cases in which this treatment is indicated.

First and most common, and that in which its indication is most pronounced, are the septic cases following miscarriage and parturition. In these cases the indication for this treatment is undoubted, and it is just here that it exerts its life-saving influence; for if the sepsis can be eradicated from the interior of the uterus before it has advanced into the deeper structures of the Fallopian tubes and lymphatic system, we are rescuing the woman not only from very serious sequelæ, but in many instances are really snatching her from the jaws of death. In these cases it is not necessary to wait until the uterus has become septic, but in all cases of miscarriage it is my custom first to explore the interior of the uterus, to make sure that it is absolutely empty of all products of conception, to cleanse it thoroughly, and to pack it with iodoform gauze. In no case is the thoroughness of the asepsis to be relaxed in any of these cases, but the thoroughness of the work depends entirely upon the condition. It is my firm conviction that where this is applied to all cases of miscarriage it is an absolute safeguard against further trouble.

In septic cases, especially those that have advanced to a condition of constitutional sepsis, of course the treatment must be applied with the most absolute thoroughness.

In puerperal cases it is my custom—indeed, my invariable rule—never to allow a woman to have a chill and rise of temperature at any time within the first week after delivery without exploring the interior of the uterus thoroughly with the curette. Where one is aseptic in his technique, no danger can possibly come from such a procedure, even when no cause of trouble is thus revealed, and the obstetrician places himself at once on the safe ground of having made sure that the trouble is not due to local infection. Of course, where there have



been extensive tears or lesions, either of the cervix or vagina, these must be cauterized or repaired by stitching.

Where the case is reached sufficiently early in the process of infection, it is my firm belief that it can be actually saved by this procedure. It is only when the poison has got into the lymphatic spaces and currents, and the system becomes so saturated with the poison that the vital powers are not able to cope with it, that death results.

It was my fortune last winter to see in consultation three cases of puerperal septicæmia in the practice of one man in this city, all of whom were subjected to this treatment, and two of whom were saved. The third case had become so thoroughly saturated at the time of treatment that, although further absorption was prevented, the patient succumbed.

In cases of chronic endometritis and subinvolution following parturition, where no poison has reached the appendages, I regard this treatment as an absolute specific.

Occasionally it may be necessary to repeat the treatment, but such cases are very rare. One thorough application in my hands has, as a rule, proved efficient.

In cases of infantile uterus, both in young married women and occasionally in some young unmarried women, where the symptoms are very greatly aggravated, this form of treatment does not fail to bring about a cure not only of the dysmenorrhœa and leucorrhœa, but frequently of sterility.

There is one other condition in which I have found this treatment most efficient. The details of one case where it was used by me were reported to this Society something over two years ago—a case of persistent vomiting of pregnancy in which it became necessary to empty the uterus. In that case, as some of you may possibly remember, I placed the patient under anæsthesia, dilated the cervix, emptied the uterus, washed it out carefully, and packed it with gauze, the whole procedure being accomplished within an hour, and the patient relieved from the vomiting from the time she recovered from the ether.

There is another point that I wish to speak of in this connection, and that is in reference to the properties of gauze as a drain. While this treatment was hailed with great enthusiasm by all and lauded for its properties of relief, and especially for the factor of drainage in the gauze, the latter feature has been very much criticised of late, and some men have even taken the stand that gauze does not drain. My observation and experience still confirms me in the belief that



gauze is a most efficient drain, and I have confirmation of it before my eyes every day ; not only does gauze drain when placed in the pelvis after the abdominal section, and allowed to protrude through the lower angle of the wound, also when placed within the pelvis and allowed to protrude into the vagina, but also when packed in the uterus. I can conceive of the gauze being so firmly packed that it might be robbed of its drainage faculty by stopping the capillary attraction, and the only explanation I have to account for the fact that it does not drain the interior of the uterus sufficiently in the hands of some men is that it is so firmly packed in the cervix as to interfere with the capillary attraction. It is an every-day occurrence to see the gauze that is packed in the uterus tinged with bloody secretion down to the very tip of the strand as it protrudes from the external os by the time the packing is completed. Within thirty-six hours the gauze in the vagina is also saturated, and the drainage makes its appearance at the vulva.

I can not close these remarks more appropriately than by repeating what I said at the beginning : that we have here one of the most efficient surgical devices that has ever been placed in the hands of the gynæcologist—wide in its application and beneficent in its results.

The PRESIDENT said he thought that there were still many points which might be brought out in the discussion of curettage of the non-puerperal uterus, and on motion it was voted to continue the discussion at the next meeting.

Official Transactions.

ARTHUR M. JACOBUS, M. D., *Recording Secretary.*

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Stated Meeting, November 19, 1895.

The *President*, HENRY C. COE, M. D., in the Chair.

*Early Abortion ; Excessive Uterine Hæmorrhage ; Curettage ;  
Prompt Recovery.*

Dr. A. M. JACOBUS presented a small fœtus with membranes intact and the decidua, which he thought might be of interest in connection with the subject of uterine curettage, the discussion of which was to be continued that evening. The patient was forty-three years of age, had had eight children and had been bleeding profusely from

the uterus for five days when he called. Dr. Jacobus had made the diagnosis of pregnancy nearly two weeks previously, but the woman, who had just missed her second period, believing that the amenorrhœa and subsequent hæmorrhage were due to commencing menopause, had delayed sending for relief. He was sent for hurriedly on October 17th last and found the patient almost in collapse from severe uterine hæmorrhage. Being sure of his diagnosis and not believing in tampons, he curetted the uterus, under the usual surgical precautions and rules, with a small *sharp* curette having a flexible handle. The cervical canal being patulous, further dilatation was not necessary. Shortly after beginning curettage the patient complained of severe colicky pain. He hesitated a moment, and then, noticing something protrude from the cervix, he continued the curettage and removed what proved to be the ovum, intact in its membranes. The hæmorrhage continuing, further curettage removed the decidua entire, when the hæmorrhage promptly ceased.

The case showed that if the *sharp* curette with flexible shaft *were* used properly, it was attended by no danger, as generally feared, such as perforation of the uterine wall, for in this case even the membranes had come away without rupturing. The uterus was douched with boiled carbolized water (3 j to Oj), but *not* packed with gauze. Hæmorrhage did not return, no fever or sepsis followed, and the patient was well and about in a week. The case illustrated beautifully that the proper treatment of abortion, whether early or late, was immediate curettage and a thorough emptying of the uterus, using, of course, care and perfect cleanliness.

The specimen had been kept in "formalin" (two per cent. in boiled water, according to the method described by Dr. George C. Freeborn), but changed daily for a few days for safety, and had been preserved beautifully, though the sac had not been opened nor the amniotic fluid removed. The foetus was fully one third of an inch long and it was believed to be five to six weeks old.

The hæmorrhage and abortion was started by violent retching and fright caused by the patient's having been nearly choked to death by a chicken bone which became fast in her throat while at dinner on October 13th.

#### DISCUSSION.

Dr. S. MARX thought it was impossible to get rid of the entire decidua with the curette, and the question arose in his mind whether it was not better to let well enough alone and allow the decidual mem-

brane to come away of its own accord. He made this remark because he had seen active curettage in order to get rid of the decidua in early pregnancy result in hyperinvolution. The sharp curette had torn out not only decidua, but also part of the muscular coat of the uterus.

The PRESIDENT said a very wide yet very practical question had been raised, and it might be well to devote a little time to its discussion.

Dr. W. R. PRYOR said that in the absence of sepsis and hæmorrhage in early abortion he would not curette, but let the case alone. No matter how thoroughly one curetted, a hypertrophied endometrium sometimes formed within the subinvolved uterus and made a second curettage necessary. He remembered the case of a girl operated upon in Königsberg who was curetted under these conditions by some professor, and who never menstruated afterward, hyperinvolution having supervened with almost complete disappearance of the corpus uteri.

Dr. BROOKS H. WELLS could not fully agree with Dr. Pryor. He thought that as long as there was any decidua in the uterus the patient was liable to develop sepsis at any time. If the abortion came on from purely natural causes, the ovum in a large proportion of cases would pass entire. But the average abortion was not from natural causes; it was the result of some interference, usually mechanical. The ovum might come away while the membranes remained, the patients go on to bleed, and get up the very condition which Dr. Pryor had mentioned as occurring after curettage—namely, a hyperplastic endometritis. He had seen that occur in a number of cases where nothing had been done but follow the expectant plan. In fact, a large proportion of the women suffered afterward from some trouble directly traceable to the abortion. But where curettage had been done carefully, skillfully, aseptically, with the sharp curette, he had never seen any harm come from it.

Dr. A. M. THOMAS thought it was a mistake to try to lay down one law for all these cases. It was better to consider each case on its merits. The history had a good deal to do with the after-treatment, as had also the nervous and physical condition of the patient. In a general way he thought it was a good plan, as stated by Dr. Pryor, to let the case alone where, in our judgment, the abortion had taken a natural course and everything seemed to have come away clean and completely. But where there was no doubt about the impending abortion, and the miscarriage lingered, as often happened, Nature

often doing her work very poorly in these cases, he thought it was good practice, and his own experience had confirmed him in this view lately, to go ahead and hasten matters—dilate the cervix, remove the ovum and clean the uterus out as well as possible by curettement under the strictest aseptic and antiseptic precautions. In other words, he believed curettement a wise procedure in many cases of abortion but would not advocate it as a routine practice.

Dr. FLORIAN KRUG also thought the cases must be individualized, each one being treated on its merits, as stated by Dr. Thomas. The view taken would depend largely upon the man, and whether he did general practice and saw the case first, or whether he was a specialist and was called in by the family physician later when the patient was already in trouble. A number of years ago he had seen a great many cases of abortion in which he did not feel himself called upon to interfere surgically, and the patients made a perfect recovery. It was true, however, that some of them had subinvolution and required curettage afterward; but one not in general practice knew when he was called in consultation that there must already be some trouble arising from the abortion, and it became necessary to treat the case surgically. In fact, the cases which he had seen for some years past had required surgical interference in the way of dilatation, curettage, and thorough cleaning out of the uterus.

If there were hæmorrhage, although not excessive, it might seriously interfere with the health of an anæmic woman, and he thought it was better not to put in a tampon which might dam blood back into the tubes, but to proceed at once to clean out the uterus and introduce gauze. Nothing wrong would happen if the curettage were done in a perfectly aseptic way. He objected to interfering in a hurried manner without narcosis. If he made up his mind to do anything he insisted upon carrying it out in a surgical way, with all the precautions against sepsis which he would take in doing laparotomy. Only in that way could one assure the patient and her family that there would be absolutely no danger from surgical interference. Now and then he was asked to be present simply to give his indorsement, when the physician would proceed to do what he was pleased to call an antiseptic operation, taking instruments, gauze, etc., out of a hand bag covered inside and outside with the dirt of ages and the smear of pathological specimens. Many women had been ruined for life by curettage under such circumstances.

Dr. E. B. CRAGIN thought the history of Dr. Jacobus' case showed that in that particular instance curettage was indicated. It

did not seem fair to criticise the treatment in removing the decidua when the indication for curettage had been hæmorrhage. If we had determined to curette, he thought all would agree that it should be continued until the uterus had been quite emptied.

Dr. MARX wished to make his position clear. He had simply stated that when a very young foetus had been born with membranes intact the question arose whether it was advisable to go in with the sharp curette and remove the decidua. All knew that ordinarily the decidua was normally exfoliated. If the abortion had been aseptic, and if one curetted aseptically, no harm would come ; but if curettage were done in a slovenly manner trouble would arise. Only cases of abortion during early pregnancy were referred to.

Dr. PRYOR also repeated his position, that the uterus should be let alone in cases of early abortion where there was no hæmorrhage, no sepsis, and, of course, no subinvolution, the case being recent. The use of vaginal tampons to prevent subinvolution he advocated, beginning them about the fourteenth day.

Dr. CHARLES JEWETT said his experience had been that cases of abortion which had not been touched at all, provided the decidua alone remained, generally did well without curetting. He did not know, however, how one was to assure himself that the decidua was the only thing left unless he had opportunity to examine the entire ovum. Therefore he would prefer to curette and make sure of the condition of the uterus.

Dr. MALCOLM MCLEAN said he agreed with Dr. Pryor that there should be symptoms to demand interference. Abortion in itself was not a sufficient reason for invading the uterus with instruments, even though we might think ourselves able to observe perfect antisepsis. In his experience these cases got along perfectly well, and if symptoms did not arise he could not see why we should curette.

He had heard the expression, Thoroughly curette the uterus, and be sure it is absolutely empty and clean. It might be that he lacked skill in appreciating what was left in the uterus ; at any rate, he had several times supposed he had thoroughly curetted its cavity, yet subsequent events showed that he had not. He also knew of a case, belonging to one member of the Society who had used such statements as the one quoted, in which the whole three months' placenta came away after supposed thorough curettage for abortion. Dr. McLean had found the smooth-pointed curette forceps of Dr. Emmet an exceedingly useful and also safe instrument, although it seemed to have been discarded by most physicians. He had been surprised at



the ease and thoroughness with which it sought out and removed remnants that had been the cause of hæmorrhage.

Dr. JACOBUS, in closing, said, in presenting the intact and unique specimen of early abortion, that he had not expected a general discussion on the subject of curettage in abortion, or what might or might not have existed in his patient. In the present case he had previously diagnosed pregnancy, although the woman did not believe it, but thought her amenorrhœa due to the commencement of the menopause. As previously stated, on the 17th of October last he was sent for hurriedly because of serious and prolonged hæmorrhage; he found the patient blanched, with a pulse of 115 to 120, and the clothing and bedding saturated with blood. As it was a serious case of uterine hæmorrhage, and believing that his previous diagnosis was correct, he thought prompt curettage was indicated to remove the secundines and check the hæmorrhage, and not tamponing, which would dam back the blood and loosened decidua and thus encourage further hæmorrhage or sepsis. Of course he first saw that his instruments were sterilized and the patient made clean. He would ask how hæmorrhage was to be accounted for in early abortion, before the placenta developed, if it were not due to separation of the decidua. That being a fact, though a portion might still be attached, a part must be free, and as hæmorrhage would continue if the uterus were not emptied and everything removed, and as we might, in addition, have decomposition and sepsis, thorough but careful curettage was indicated and the only proper surgical procedure. After the curettage he washed out the uterus with boiled water, *but did no packing*, and the patient had no further hæmorrhage, pain, or fever, and made a rapid recovery. He had supposed that the fœtus had escaped during the prolonged hæmorrhage, and was surprised to see it come away during the curettage, and especially intact in its membranes, thus showing the safety of a sharp curette.

*The Indications, Technique, Pathology and Results of Curettage of the Non-puerperal Uterus.*

ADJOURNED DISCUSSION.

The PRESIDENT called attention to the fact that the discussion was to be limited to curettage of the *non-puerperal* uterus. We were sufficiently familiar, he said, with the technique, but it was the purpose of the present discussion to bring out exactly what was accomplished by curettage; what was the immediate condition of the uterus



afterward ; what was the ultimate condition ; what was the effect on the annexa, if any ; what was the effect of inserting gauze after curettage ; what was the effect on conception, etc.

As simple as was this operation, it had received a great deal of attention lately from German pelvic pathologists who had examined the uterus a week, two weeks, and three and four weeks after curettage, and the results of their work had been most interesting. They had shown that the operation as generally performed was often imperfectly done ; that the endometrium was removed only in patches, while in order to have complete healthy redevelopment it was necessary that it should be entirely removed. More recent observations had shown that the most thorough manner of performing curettage was, after removing the general endometrium, to go up into the cornua with a specially devised instrument and to scrape out the fungosities in that region. It was also interesting to note the anatomical effect of cauterization immediately after curettage, especially with persulphate of iron.

The question as to whether gauze actually drained had already been discussed before the Society, but it was desirable to determine positively whether it was or was not possible "to drain the tubes into the uterus."

Dr. FLORIAN KRUG admitted that he was not prepared for the discussion. It was true that he had done curettage a great many times, and was one of the few who had not been afraid to resort to it in the presence of salpingitis and oöphoritis, which formerly were considered absolutely a contra-indication to invading the cavity of the uterus.

Curettage had for a long time been handicapped strongly (1) by imperfect asepsis and antisepsis ; (2) by the dull curette, which he regarded as no curette at all ; (3) by unskillful operators and poor indications for the operation. These facts accounted for many poor results from an operation which, under other circumstances, had done more good for women than any other in gynæcology. Again it had been handicapped by inflicting upon a clean surgical procedure something which should never be done—namely, using caustics or even germicidal solutions in such quantity as to be caustic, and bringing about a condition inside the uterus entirely different from that left by the surgical procedure. For at least eight years he had never used iodine or any other chemical solution after doing clean curettage.

Unless in rare cases, the tube and ovary could not be influenced by curettage. What benefit had been seen could be attributed to removal of the primary focus of infection. Take gonorrhœic salpingi-

tis. The infection had extended beyond the endometrium, and we had gonorrhœic salpingitis; he was not now speaking of pyosalpinx. There was inflammation, congestion, pain, tenderness, etc. A good many of these tubes and ovaries had been extirpated, fortunes had been made, and numbers of women had been mutilated for life where it was not necessary. The way to attack these cases was to diagnose them aright at the start, and even if one thought it would prove necessary to do a secondary operation subsequently, and extirpate the annexa, yet, as long as there was a possible chance of curing the patient by proper curettage, this should first be done.

But why did a large number of women get well after curettage, even though there had been distinct salpingitis and, it might be, ovariitis? It was simply because of removal of the primary focus, a continual avenue of infection, thus giving Nature a chance to take care of the infected tube. It might be that the woman would never become pregnant afterward; it might be that the tube would remain occluded by adhesion; yet it was a symptomatic cure, and the patient was better off than the young wife of eighteen or twenty-one both of whose tubes had been extirpated. He claimed, however, that it was absolutely impossible for curettage to have any other effect on disease of the annexa except by taking away the fuel for infection of the tubes. But cure the endometritis by curettage, and Nature would be given a chance to take care of the salpingitis and ovariitis. While in a good many cases it might become necessary afterward to remove the appendages, yet in a good many they could be retained, although in a somewhat damaged condition.

Dr. E. B. CRAGIN was called upon to speak of the effects of gauze tamponade after curettage. He had been rather skeptical for a few months as to gauze packing draining the uterus, and within a week past had about made up his mind to do less of it. A case which had impressed itself upon him was one of dilatation for sterility, in which he left the gauze three days, and then on removing it, although there had been no rise of temperature or increase of the pulse-rate, a discharge of some mucus took place, showing that there had been an accumulation above which could not drain away. It might be argued for the other side that he had not entirely filled the fundus with the gauze. It was introduced as far as the fundus, but perhaps did not quite fill it. He then repacked the uterus after washing it out, and on withdrawing the gauze at the end of three days, had the same experience. It did not seem rational to him to attempt to drain the uterus in this manner when, on withdrawing the gauze, considerable

fluid escaped. In the future, when desiring to drain the uterus, he would use only a narrow strip, or none at all.

Dr. ROBERT A. MURRAY thought the discussion had taken on a different phase since the previous evening, and he must confess to surprise at some of the statements which had been made as to the effect of drainage by gauze and of curettage on the annexa. About four years ago he had reported six cases at the American Gynæcological Society, all of which had been carefully diagnosed by two other gentlemen besides himself, and in all at least two members of the New York Obstetrical Society had advised removal of the appendages. In one there was diphtheritic membrane inside the uterus and exudation at each side of the organ as large as one's fist. Yet this patient recovered, and after a year and a half he delivered her of a living child. He followed each of the cases up, and delivered them subsequently of one or more children. It was shown by those cases that we could, in a certain number of instances of salpingitis, empty the tube through the uterus by curetting the thickened, swollen membrane away from the mouths of the tubes in the uterine cornua. He had demonstrated to a number of medical men the flow of pus out of the cervix uteri by expressing it from the tubes following curettage, the distended tube being afterward collapsed. In addition to the six cases named he had seen at least twelve or fourteen other similar ones in which there could be no doubt of the tubes emptying themselves into the uterus after curettage.

Incidentally, Dr. Murray expressed the opinion that the manner in which iodoform gauze produced its greatest benefit was by inducing contraction of the uterus. One of the gentlemen had objected to introducing any chemical substance into the uterus, including iodine. Why, then, did he use iodoform gauze and not simple gauze, for iodoform contained as much iodine as the ordinary tincture, and had very nearly the same effect. Pure gauze had not given as good results as iodoform gauze.

Returning, he said that frequently the tubes became smaller after curetting the uterus, and the inflammation subsided before going on to suppuration. In his experience these were the cases in which there had been greatest pain, whereas in purulent cases the process was less painful and more chronic.

Regarding the last speaker's statement—that mucus had escaped after removal of the gauze—he would like to know what had been the condition of the tubes at the time of curettage and tamponing. It was a question in his mind whether the extravasation did not come

from the tubes emptying themselves through the influence of the stimulus upon the uterus and its fibers extending upon the tubes. Curettage, unless extended to the uterine cornua, was, in his opinion, next to valueless.

Regarding the use of escharotics, at one time he had seen these used a good deal in Bellevue and in dispensaries, especially chloride of zinc, tincture of iodine, and perchloride of iron, and while the zinc chloride seemed to act best, yet it resulted in contraction of the uterus if used in strong solution, and the last condition of the woman was worse than the first. The subsulphate of iron used to be a favorite application with Isaac E. Taylor, Fordyce Barker, and some of the older generation, but Dr. Emmet observed its effects carefully, and said that it was one of the worst things which could be employed, as it produced firm uterine contraction and interfered with drainage, retaining secretions which became septic.

The PRESIDENT called upon Dr. Janvrin to discuss the effect of curettage in patients near the menopause, when the condition was apparently on the border line of malignancy.

Dr. JOSEPH E. JANVRIN fully concurred in Dr. Murray's remarks regarding the possibility of pus disappearing from the tubes after thorough curettage of the uterus. He had himself had several cases in which directly after curettage, or a few days afterward, pus escaped through the cervix on making pressure upon the tubes.

He agreed with Dr. Cragin regarding the use of the gauze tampon for drainage, believing that a small amount applied in the uterus after curettage was much better than packing the cavity. A strip of gauze half an inch in width and a foot in length, with the lower end projecting from the cervix, was sufficient for drainage. Thorough packing rather interfered with drainage.

He had not expected to speak upon the subject, but since the President had called upon him, he would say that formerly he had curetted the uterus frequently at the commencement of carcinoma, and more or less frequently of recent years preliminary to vaginal hysterectomy. In the latter class of cases, on cutting the body of the organ open within a week or two following curettage, he had always found its inner surface polished almost like marble, showing that the curettage had been done effectively. The endometrium, and sometimes deeper structure, had been thoroughly removed, only the muscular tissue of the uterine body remaining. Every one was agreed that curettage was justifiable in the commencing stage of carcinoma in order to secure scrapings for microscopic examination. In doubtful cases the

procedure was particularly appropriate, and in a number of cases of this kind, particularly in the aged (in which he had performed curettage), the patients had gone on to recovery. The microscopical examination had not confirmed the probable diagnosis of carcinoma, based on the other signs.

Regarding adenoid growths in the uterine cavity, it was Dr. Janvrin's belief that they indicated malignant disease, or would soon become malignant, and therefore it was his custom on discovering their nature by curettage to go on and do vaginal hysterectomy.

Incidentally, Dr. Janvrin added that in a large percentage of the cases of carcinoma of the body of the uterus, or of the body and cervix, with thickening in the broad ligaments, the result of hysterectomy had shown that this thickening was only of inflammatory character, not malignant, for the patients had recovered and lived for years afterward.

The PRESIDENT then asked Dr. Gunning to speak on the anatomical effect of intra-uterine galvanization in cases of hæmorrhage, as compared with that of curettage.

Dr. J. H. GUNNING replied that he should judge, from his experiments made upon the uteri of animals, that the electrolytic effects of the galvanic current sometimes penetrated deeper and affected tissues more profound than those reached by the curette. In the human subject he had used the current in a few instances after curettage, but the battery was a small one of not more than three or four cells. The effect on the mucous membrane was, as far as he could tell, quite satisfactory. His experience had not been sufficient to lead him to say that he would be willing to lay aside the curette for electricity in the treatment of abortion. He could say, however, that he regarded electricity as very useful after curettage, but not as a substitute for it, except sometimes in a virgin uterus. The experiments made by him had shown that the current had a marked influence on the mucous membrane, and that this influence extended into the body of the organ.

Dr. FRANCIS FOERSTER made a distinction between the use of gauze for drainage and for packing. He used only a small strip for drainage, and this he believed did assist drainage in every respect. The value of packing the uterus with gauze was to induce the organ to contract. This object could not be accomplished with a small strip.

When Dr. Pryor stated that not all micrococci could be removed by the curette, a reason was given, Dr. Foerster thought, for the use



of some antiseptic fluid. If one micrococcus was left, this fluid might reach it, or at least destroy the nourishing soil on which it flourished. A thorough packing of the uterus with iodoform gauze would assist to deprive the micro-organisms of their nutrition.

The speaker would insist on thorough curettage, extending into the uterine cornua. Acting on this belief, he had observed beneficial effects upon tubal complications, and in some cases thought a permanent cure had been effected.

In calling upon Dr. Harrison, the President put the question, Why are we obliged to curette several times, even though we do it thoroughly? Why does the diseased condition recur?

Dr. GEORGE T. HARRISON said he did not know whether he could answer the President's last conundrum, therefore he thought he had better speak to some other point. As to the question what we should call the endometrium, he thought it rather an academic one. It certainly did differ from ordinary mucous membrane. The views which we entertained of an organ influenced our treatment of it, and he thought Dr. Pryor had gone too far in his apprehension of the injurious effects of caustics upon the endometrium. Dr. Harrison agreed with him heartily with regard to the stronger caustics, especially sub-sulphate and perchloride of iron, but he had seen no injurious effects from following up curettage with iodine in cases of hyperplastic endometritis (with the cavity enlarged) and the condition associated with myomata.

Regarding packing, he was in hearty accord with the views enunciated by Dr. Krug and Dr. Pryor. He thought we ought not simply to put in a strip of gauze with a view to drainage. That was not its object. The cavity should be plugged by packing it thoroughly. In that way the gauze was brought in contact with the whole endometrium. It then had the faculty of absorbing the secretions and maintaining them in aseptic condition, while at the same time preventing hæmorrhage. If the gauze were aseptic when introduced, it could remain five, eight, or ten days without bad consequences.

The question of the influence of the treatment on the annexa was an exceedingly important one. If his experience was of any value it certainly showed that dilatation, curettage, and irrigation did have an after-effect of relieving oöphoritis and salpingitis. He had seen an enlarged ovary diminish in size after curettage until it would not be noticeable. Patients of this kind had not only been relieved, but had remained well. While this result could not be expected in every instance, yet, according to his experience, a great many patients were



relieved by curettage of associated inflammation of the annexa. Some years ago Breuncke had written upon this subject, insisting that there was a form of endometritis due to oöphoritis. He attempted to differentiate between that form and the ordinary form affecting the uterus alone. Other observers had taken the same view, insisting that the two forms were quite different. It might be assumed, *a priori*, from this association that relief of the endometritis would benefit the annexa.

Dr. Harrison thought the President's question applied more, probably, to the glandular form of endometritis, or that form in which the glands were largely affected. By repeating the operation a number of times at long intervals he had in several instances ultimately effected a cure.

Dr. HERMAN L. COLLYER rose to explain some of the causes of recurrence in his practice. In a number there had been a partial sæptum in the uterus, presumably congenital, and if it were not discovered curettage would not be successful. Dr. Murray had stated another cause of recurrence—namely, failure to thoroughly curette the uterine cornua. The speaker distinguished between hyperplastic endometritis and fungosities. In the former there was thickening of the lining membrane; in the latter there were patches of fungosities, with or without hyperplasia of the endometrium. In the former, with thickening of the membrane, there was more apt to be tubal and ovarian trouble. It had been the experience of nearly everybody to see salpingitis and oöphoritis relieved by divulsion and curettage of the uterus, and the explanation, in his opinion, was that it gave egress to pent-up secretions. Another condition favoring recurrence was pelvic congestion. Many patients did not receive proper advice; they thought the curettage was to cure them; they returned home, did imprudent things, and as a result got up pelvic congestion and recurrence of their uterine disease.

Dr. Collyer did not think that packing and plugging the uterus tightly with gauze would give as good results after removal of the membrane in fibro-polypi as introduction of sufficient gauze to induce contraction, but not sufficient to cause paralysis of the muscular fibers and a tendency to relaxation. If the uterus were packed too tightly it would first relax and then try to force out the obstacle and, failing, would again relax. It had been his custom to introduce six to eight inches of gauze one inch wide soaked in iodine, according to the size of the uterus.

Dr. JANVRIN asked the President to repeat the question, and the

President replied that "it was the prevention of the recurrence of adenomatous hyperplasia after thorough curettage." Dr. Janvrin said that from his standpoint adenoma was true cancer, and where recurrence took place after thorough curettage it must be due to the fact that not all the foci of disease had been removed. In his opinion, any amount of curettage in these cases would not permanently cure the disease.

Dr. W. M. POLK closed the discussion. In the first place, he desired to emphasize the fact that in the acutely inflamed non-puerperal uterus curettage was out of place. Drainage was all that was required. That referred, of course, to cases of acute inflammation dependent upon sepsis or gonorrhœa. He made the statement because his clinical observation had led him to believe that curettage simply intensified the condition instead of relieving it. Formerly he thought curettage was the proper treatment, but now he limited it to dilatation and drainage.

Regarding gauze, he thought Dr. Foerster had given its true position, and reconciled the conflicting testimony given by Dr. Murray on the one hand and by Dr. Cragin on the other—that is, there were cases in which simple drainage was all that was required, while in others packing was demanded. The case spoken of by Dr. Cragin was one in which Dr. Polk thought simple drainage would probably suffice. Speaking of the condition as it presented itself in the form of endometritis and metritis, it seemed to him, as he had suggested at the former meeting, that treatment by packing with gauze was rendered necessary in chronic cases, whether of the hæmorrhagic or purulent form, and that the results, especially in cases of so-called subinvolution, were brilliant.

Regarding subacute or chronic oöphoritis associated with endometritis, his own work had borne out Dr. Harrison's statements. A large number of such cases could be reached very satisfactorily by curettage and packing the uterus. He said packing, not drainage, for these were the cases which required the conditions suggested by Dr. Foerster for obtaining the far-reaching effects of the curette. There must be subsequent contraction of the organ, with its eliminative and derivative effects upon the associated structures. When one considered the anatomical relations existing between the uterus, the tubes, and other pelvic structures, he thought the beneficial effect upon these structures following treatment of the uterus, and to which Dr. Harrison had alluded, became sufficiently plain. In this connection he might express his conviction that the revival of vagi-

nal incision as a part of this work was of the greatest importance. Undoubtedly some cases would not be relieved by treatment directed to the uterus alone, for the ovaries were not only congested, but part of their structure had undergone degenerative change ; vaginal section would enable one to determine the exact nature of the lesion and the necessary treatment—whether to remove the ovary or simply do curettage. He had been adopting this course very extensively the last two months, with the greatest possible degree of satisfaction.

Dr. Polk had become more convinced the more he resorted to curettage with packing the uterus with sterilized gauze, that it was one of the most important minor measures of treatment which had been introduced into gynæcology. When mere drainage was the purpose the gauze should be replaced afresh daily, else it would become so clogged by mucus it would fail in its object.

Regarding the effects of various agents introduced into the uterus, Dr. Nott had reported his conclusion upon this point many years ago. It was against the use of perchloride of iron because of the hard coagulum which it formed, which was difficult to detach and difficult to break down, thus furthering sepsis. Tincture of iodine, on the other hand, did not produce such clot and was quite as beneficial in its effects upon the endometrium.

Official Transactions.

ARTHUR M. JACOBUS, M. D., *Recording Secretary.*

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## TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, December 5, 1895.

The *President*, WILLIAM H. PARISH, M. D., in the Chair.

Dr. WILLIAM M. POLK read a paper (by invitation) entitled

*Surgical Treatment of Suppurative Disease of the Appendages.*

(See page 1.)

### DISCUSSION.

Dr. THEOPHILUS PARVIN : Mr. President, with the other members of the Society I feel profoundly grateful to Dr. Polk for the paper he has presented this evening. I think a new era is coming to the pro-

fession in reference to vaginal section being substituted in many cases for abdominal. It was my fortune to spend several weeks in Berlin this summer, where I saw few laparotomies, but many colpotomies. The first argument against abdominal section, if colpotomy can be employed, is the liability to ventral hernia caused by the former. Winter, for example, has shown that with the ordinary method of suturing the abdominal incision twenty-three to thirty per cent. of the operations are followed by such herniæ. These statistics include one thousand cases. In order to reach a valuable result the patients must be followed for two or three years, or longer. Winter at the same time stated that the proportion of cases of ventral hernia was reduced to eight per cent. if catgut was used for stitching the peritonæum, also for stitching the fascia, and silk sutures (five or six) for the skin, and then a continuous catgut suture, the method of Olshausen. It is to be observed that, accepting the statements of Winter,\* some time must elapse before we can state that an abdominal section will not be followed by hernia.

The second argument in favor of colpotomy is that septicæmia is less likely to occur than if the abdomen is opened anteriorly. This statement is made by Bonnet and Petit in their *Traité pratique de gynécologie*, published last year, and by other authorities.

There is still another matter of no little importance in all operations upon the internal sexual organs—saving, if possible, a woman's ovaries. Prof. Simpson, from Sir Spencer Wells' statistics,† has shown that women who have had their ovaries removed are at least six times more liable to cancer than other women; and that "in the cases where cancer supervened double ovariectomy had been performed in the proportion of nineteen per cent., while among the patients that remained free from cancer the proportion of double ovariectomies had been only 7.5 per cent." Prof. Simpson suggested that the tendency to cancerous development in these women might be due to the absence from the system of the ovarian internal secretion.

The plain lesson from the facts adduced is that in all these operations, whether for purulent collections in the tubes or not, save the ovaries, if possible, or at least a part of an ovary. It is an error to say that because the tubes must be removed, therefore let the ovaries be also removed, as we now know that these organs have another function besides contributing to reproduction.

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\* *Monatsschrift für Geburtshülfe und Gynäkologie*, October, 1895.

† *Obstetrical Transactions*, 1894-'95, vol. xx, Edinburgh.

In pursuance of the practice just advised, I have seen cases of blood cysts of the ovaries twice the size of a hazelnut incised by Mackenrodt, using the thermo-cautery, others the knife, evacuated, and the organ left.

Next, referring to anterior colpotomy, I am sure that this is performed easily by expert operators and pus-containing tubes removed, the incision closed by catgut or silk sutures; this I have seen done with as much facility as I ever saw the removal of the uterine appendages by abdominal section on the part of the most expert. The only failure to complete the operation was one in which hæmorrhage continued which could not otherwise be checked but by the removal of the uterus. Possibly, too, there are cases in which narrowness of the vagina may prevent the performance of anterior colpotomy. Further, it may be admitted that in case of extensive and high adhesions these may be best dealt with if abdominal section is made. Nevertheless, there is a large number of cases in which anterior colpotomy may well be substituted for the usual operation. Incidentally it may be stated that uterine tumors, more especially fibroids of the anterior wall of no great size, can thus be removed, and also many ovarian tumors. From the numerous colpotomies I saw in Berlin, chiefly done by Martin and by Landau, and a few by Mackenrodt, my belief is very strong that this operation will soon be generally adopted.

It would seem to be important that in case this operation is performed for the removal of diseased oviducts there ought always to be combined vaginal fixation, for a posterior displacement of the uterus is very probable, if not inevitable.

In case of removal of the uterus as well as the appendages, done for purulent collections, removal of the womb regarded by many as essential in case the suppuration be gonorrhœal in origin, I do not know whether Dr. Polk pursues the plan followed by Péan, Ségond, and many others, especially by Landau—that is, extirpation by *morcellement*, but it certainly seems a most satisfactory method, and the remarkably small mortality given by Landau in his practice strongly commends it. In this method, as is well known, hæmostasis is secured by forceps; probably a dozen of them will be applied and allowed to remain for twenty-four hours. I saw many of Landau's patients, not only witnessing the operations but visiting the subjects for some days subsequently, and the convalescence was in each uninterrupted.

Among other interesting cases observed in the practice of his brother, Dr. Theodor Landau, was one of a large encysted purulent collection in Douglas' *cul-de-sac*, probably consequent upon a hæmat-



ocele. The treatment successfully used was simply incision with the introduction of a rubber drainage-tube.

Let me add that one of the advantages claimed by its advocates for colpotomy is the perfect drainage secured. Of course this applies more especially to cases in which purulent collections are evacuated and extirpation of the uterus associated with the evacuation.

Possibly the reason that the operation of anterior colpotomy has been so readily and generally accepted in Berlin is that its inventor, Dr. Dührssen, lives there, and did several operations, so that the method has received his name. It is not, however, wise to give any operation the name of its inventor.

If an anterior colpotomy, whether for the removal of the tubes or not, and then vaginal fixation is employed, it seems to me that not silk sutures but catgut should be employed, for it has been observed that cases of stone in the female bladder have become less rare since such fixation has become a recognized operation, and the most rational explanation of this result is that one of the sutures has entered the bladder, and fragments of silk have become the nuclei of calcareous deposits.

I have said that colpotomy greatly lessens abdominal sections. Dr. Polk, for example, has done only three abdominal sections in the last year. I am quite sure that the paper presented us to-night, if not fully accepted now, will ultimately be, and we can all feel grateful to him for presenting it.

Dr. ASHHURST: I have no doubt, Mr. President, that all the members of this Society are familiar with the anecdote told of an eminent critical reviewer who, when an author whose book he had cut to pieces complained of the treatment which it had received, and said that he really believed the critic had not read the book before reviewing it, replied that of course he had not done so, and that he never thought of reading a book before he reviewed it, since he always wished to approach the subject with a totally unprejudiced mind. I believe, sir, that when you asked me to take part in this discussion your object was to see what view would be taken by one who knew nothing about the matter in debate, and who would therefore approach the question at least without any preconceived notions in regard to it. Anything which I may have to say you will therefore please to consider as coming from a general surgeon, who has, of course, some general opinions on the subject of lesions of the peritoneal cavity and on suppuration in general, but who does not pre-



sume to express an opinion for or against the special views advocated in this paper.

I have been much interested in Dr. Polk's remarks, and some points have struck me as confirming facts familiar to general surgeons, and to which, therefore, I may be permitted to refer. In the first place, I believe that all surgeons are agreed that when the practitioner can satisfy himself that pus is present in any part of the body it is desirable, if possible, that this should be evacuated. The difficulty in general surgery, and I think that occasionally the same difficulty is met with by gynæcologists, is that of diagnosis: the risk of thinking that pus is present when really it is not. I think that I have even heard of Fallopian tubes having been removed on the supposition that they contained pus, which after removal were found to contain merely an accumulation of mucus, the natural secretion of the part. If the surgeon or gynæcologist is, however, satisfied that pus is present—and of course, with his larger experience, the gynæcologist will become less liable to err in this respect than others—then I think that there can be no question of the propriety of evacuating that pus wherever it may be found.

I have also been much interested and gratified by the view expressed by Dr. Polk that in cases where the patient is not in a condition to bear an extensive operation the treatment should be divided into two stages: first, simply evacuating the pus and draining the part, and, second, reserving more radical measures for a subsequent occasion. That is a plan of treatment which must, I think, commend itself to every one, and certainly would be acceptable to the general surgeon.

As to the advantages of what Dr. Polk has called the lower operation—dealing with complicated cases by vaginal incision rather than by abdominal section—we have analogies here also in general surgery. We are familiar with the safety of operations for the evacuation of pus when precautions are taken not to involve the abdominal cavity—cases of iliac abscess, for instance, resulting from disease of the spinal column. It is often practicable to evacuate these by a careful incision made close to Poupart's ligament without at all implicating the peritonæum. Then, again, if by accidental or operative traumatism the peritoneal cavity should be wounded, we know that there is less danger if the wound be in its lower than if in its upper portion; therefore in operations, for instance, for strangulated umbilical hernia it is the rule to make the deep incision downward rather than upward, because we know by experience that the lower incision is

less apt to be followed by peritonitis. It is safer, therefore, to make a low rather than a high incision, and it is safer still to accomplish the desired object if possible without opening the peritonæum. It will be remembered that in the early days of operations for appendicitis Willard Parker, who was a pioneer in this department, laid great stress on the necessity of so planning the incision as not to invade the peritonæum, and it is only within a few years that we have recognized the fact that the abscess in these cases is really within the abdominal cavity. I am prepared to believe, therefore, that there may be a decided advantage in trying to deal with such cases as Dr. Polk has referred to, extraperitoneally, and that even if the operator should be so unfortunate as to wound the peritonæum there would be less danger from the accident occurring in what Dr. Polk has called the low operation than in one differently situated. Indeed, the worst place in which it is possible for the peritonæum to be wounded is the epigastric region.

I was interested by Dr. Parvin's remarks as to the frequency of hernia after laparotomies. It reminded me of a statement which I heard made in this hall last evening, when a member of another society said that an instrument-maker in this city had told him that he was in the habit of supplying trusses or pads for what he called "incisional hernias" to the number of five or six each day. This statement was a surprise to me, but was not contradicted, and, if justified by facts, would seem to show that the occurrence of hernia after abdominal section is more frequent than has been generally supposed.

I was much interested in Dr. Parvin's suggestion that the retention of the ovaries lessened the liability of the patient to cancer. I do not understand why this should be, and I trust that if Dr. Parvin has an opportunity he will explain to us why the ovaries should have this prophylactic property.

Dr. NOBLE: I was so unfortunate as to arrive too late to hear Dr. Polk, so that what I shall say will be more of a discussion of the general subject than of Dr. Polk's paper. However, I think I understand Dr. Polk's position, which will assist me in my remarks.

As I understand it, Dr. Polk takes the position that vaginal operations possess many advantages over the abdominal section, and that they should supplant abdominal section. It seems to me that what vaginal operations will accomplish has not been established. Vaginal operations are yet in their infancy; results, good and bad—particularly remote results—have still to be established. In abdominal operations the work is now so comparatively old that we

are very much better informed. I think the claims made by those who advocate vaginal operations are very great. They also claim a great deal that is bad against the abdominal work—for instance, hernia. The great argument in favor of abdominal work is, we do not have hernia. In about two hundred abdominal operations in which the abdominal wall has been sutured with non-absorbable sutures I have not had a single hernia return to me. Perhaps some may have occurred, but, if so, they have gone into the hands of other practitioners; but none of the gynæcologists of the city have met with them. These were sewed up without drainage. In the practice of other men who make use of a similar method of suture the same or similar results have been obtained. From my standpoint the liability of hernia simply applies to poor methods of sewing up the abdominal wall, because either it is not possible from the nature of the case to make a careful suture of the abdominal wall, or the patient is so feeble that the operation has to be hurried, or drainage is required. In general, if the abdomen is properly sewed up, the percentage of hernias will be so small as to be almost nil. That is one of the great arguments against abdominal operations, and upon examination it is seen to rest upon a very small basis.

The next argument is that the mortality in vaginal operations is lower than in abdominal. That remains to be demonstrated also, at least so far as published statistics are concerned. The latest statistics, given at Baltimore at the meeting of the American Gynæcological Society, showed a mortality of 4.2 per cent. for vaginal operations and 2.7 per cent. for abdominal operations. This, in my opinion, however, is largely a personal matter. It depends upon the operator. The best operators will have a low mortality by either operation. The question of mortality, therefore, can not enter into the argument for one method rather than the other.

Another claim which is made by those advocating vaginal operations is that in bad cases (the suppurating cases, particularly), where there are large pus collections in the pelvis, the disease can be removed without opening the general peritoneal cavity. This claim is entirely fallacious. It is the experience, I believe, of most gynæcologists (I can not recollect more than a few cases) that on opening the abdominal cavity the diseased parts can not be reached by the finger, in spite of the extensive matting together of the tissues—in other words, whether an abdominal hysterectomy or vaginal hysterectomy is done in such cases, the general peritonæum is opened. In this class of cases I believe that neither vaginal hysterectomy nor

abdominal hysterectomy is the best method of treatment. Simple incision and drainage is the wiser plan. Where there is a large collection of pus in the pelvis, instead of doing vaginal hysterectomy, cleaning out from below, or doing abdominal hysterectomy, it is far wiser to drain—get them over the septic condition they are in—and then do a radical operation.

Having touched upon these points, we have left the more usual cases of pus tubes where there is no intraperitoneal abscess, and where the pelvis is not absolutely blocked up. I have no doubt that these cases can be cured by operation through the vagina. The work of Dr. Polk and other operators has shown us this. It is a question whether it should be done by the abdominal or the vaginal route. Which offers the most advantages and the least disadvantages? Of the cases operated on from below, in a large percentage the operations are not complete. Dr. Jacobs, who has had a large experience, has in a considerable percentage of cases left a part of the uterus or part of the pus tubes or ovaries in operations from below. It is the experience of every abdominal surgeon that in this class of cases the diseased parts can be removed cleanly from above. So far as my own personal experience goes, I have never seen a case of this class in which a complete operation could not be done. From this standpoint the abdominal route offers a great advantage over the vaginal route. If in the future such improvements are made in vaginal operations as to enable us to do complete operations, the arguments of their advocates will appeal far more strongly to surgeons than the results which have been published.

In these cases, also, as to the remote results, I can but believe that if portions of pus tubes or ovaries, particularly ovaries or tubes containing pus, are left behind, we will have in a large percentage of these cases recurring attacks of peritonitis, just as we have had before operation, and also that if pieces of ovary remain, sequelæ will result which are avoided when complete operation from above is performed. In the milder cases (retroflexion, adhesions, etc.), leaving aside suppurative cases—that class of cases which have to be operated upon for relief of suffering, rather than because of danger to life—many advantages are offered in operating from above. Even Martin, who is one of the strongest advocates of vaginal work, says that if the uterus is adherent from behind, the operation of colpotomy is not indicated. He has avoided it in these cases because he does not think they can be so safely dealt with from below. It seems to me the results from above are so excellent that it is very difficult to improve

upon them. The possibilities also of doing conservative work in this class of cases are infinitely better from above. We can see the ovary and tubes so much better through the abdomen than from the vagina that operations for such conditions as hæmatoma or small cysts can be much more satisfactorily accomplished. I believe a larger number of conservative operations can be done through the abdominal than through the vaginal route. In many of these cases several operations are necessary. By using the abdominal route everything can be done on the same day. We can frequently save patients a second operation by doing plastic work and the abdominal operation at the same sitting.

One more question: When vaginal hysterectomy is done, how many vaginal hernias are we going to have? Dr. Joseph Eastman, of Indianapolis, who has had a large experience in vaginal hysterectomy, states that a large percentage had come back with vaginal hernias. It is not at all unlikely that where vaginal hysterectomy is done the percentage will be fully as large as of ventral hernias after abdominal section, when the abdominal wall is properly sutured.

Dr. BALDY: Dr. Polk has approached the question of whether we should employ the vaginal or abdominal method from the pathological point of view, which makes the whole subject extremely difficult to discuss. He considers different degrees of the same disease, and deals with them as different diseases. The kernel of his paper, however, deals with the relative merits of abdominal hysterectomy and vaginal hysterectomy in so-called pus cases. I should like to be clearly understood at the beginning; in speaking of pus cases we do not necessarily mean pus cases, but often cases that have been pus tubes in which the pus has disappeared. As a matter of fact, in the majority of these operations that I have seen done, and done myself, real pus tubes were not present.

Dr. Polk has made the assertion that the vaginal operation is in the interest of the patient, the abdominal operation in the interest of the operator. In looking over his discussion for proof of these points I fail to find a single proof advanced; the statement is made, but remains absolutely unsubstantiated. It is perfectly proper for Dr. Parvin to quote German statistics, but if American work is to be judged by this standard (thirty per cent. of women who have the abdomen opened suffering from hernia) we must object. If the Germans would do what they never do do—quote American statistics—they would never have occasion to make such an absurd statement. I have only seen or heard of two hernias in my own work in the past two years.



Dr. Noble has stated what he finds in his. Most operators will tell you pretty much the same thing, and *proof* to the contrary has never been forthcoming. I maintain that a large proportion of hernias following the abdominal operation results from incompetency rather than from the operation *per se*.

As to the relative merits of the operations in reference to the ease with which they are done by the operator and the patient's interest: Does not anything that makes the operation easy for the operator render it so if it will give him better results? Is this not in the interest of the patient herself? There can be but one answer to that question. What redounds to the interest of the operator redounds to the interest of the patient. Everything redounds to the interest of both the operator and patient in abdominal section. As to my reasons for this statement, they are these: In the first place, no one can tell in every case in which the operation is to be done what he is going to meet with; whether in a given stage he will not meet a condition which he did not expect, and which will countermand the removal of the appendages and uterus. I do not know of a single operator, vaginal or abdominal, who has not had cases in which he has commenced the operation, gone to a certain point in it, decided a mistake had been made, and did not complete it. Now, sir, by what method can we best decide and judge as to that question? I can not conceive of there being but one answer. Is it possible by the abdominal method that a man will open a pregnant woman (a thing which has been done more than once by some of the best operators in the world)—a woman with perfectly healthy tubes, with a perfectly healthy uterus, with a healthy foetus in it—and not discover his mistake in time to avoid irreparable damage? In that respect alone the abdominal is preferable to the vaginal method.

Is it true, as is stated by the vaginal hysterectomists the world over, that the peritoneal cavity is not opened during their operations? This statement has been made time and time again in papers, books, and discussions. This statement is not true in one case in a hundred. We all talk about the pelvis being absolutely covered in by adhesions. In but rare exceptional cases is this so. There are, as a rule, a few minor omental and intestinal adhesions, and a great many uterine and tubal adhesions. The statement is made that you leave a shoulder of lymph above and between the peritoneal and pelvic cavity; this is merely fallacious, merely an idea, not an actuality. The gentlemen who make these statements do so thoughtlessly. Dr. Noble has called attention to the fact that hernia does occur in vaginal operations. I



believe that as time goes on we will see more and more hernia following the vaginal method. There are serious complications of both hernia and fistula by the vagina. The fistulæ are absolutely alarming in their frequency. There is not an operator in France, there is not an operator abroad who has reported his work, large quantities of it, in which there are not eight to twelve or twenty fæcal fistulæ which they have been unable to cure. Dr. Polk speaks of cases in which you tear the bowel high up, and says leave it alone, you can not do anything to remedy it. The mere fact that such an eminent operator refers to this point indicates that he at times must meet with such cases, and that other operators must meet with them often we know from their reports. These are disasters inherent to the operation, not particularly to the operator. The best operator can not get away from them. Dr. Jacobs reports a case where the ureter was severed by himself and where he was unable to repair, afterward necessitating a nephrectomy. He reports eight or ten fistulæ in his own work, to say nothing of Ségond's and Péan's work.

In abdominal work, if we tear the bowel or sever a ureter it can be repaired at once; we do not cause these injuries and not know of it. Dr. Jacobs stands as probably the one operator who does *complete* operations in these cases. He stands prominent in this; he insists, where complete operation can be done, that it is necessary for it to be done. What are the results of it? He reported before the American Gynæcological Society an exceedingly large proportion of incomplete operations, demonstrating that even he was unable to finish them properly. By the abdominal method we need never have an incomplete operation. The case does not exist where the pelvis can not be cleaned out—ovaries, tubes, everything—and leave a perfectly clear and clean pelvis. This is an absolute impossibility from the vaginal standpoint. I have substantiated this statement not only theoretically, but from seeing a large number of the best operators, both in this country and Europe, and I have never seen a single one complete a single operation. It is inconceivable how there can be any question of the relative merits of these two operations from this point of view. In the abdominal operation we can always complete the operation; it can be done without fistulæ, it can be done without drainage. This is one of the great points held up in favor of the lower operation—drainage. I consider the more I drain, the worse surgery I do; the less I drain, the better surgery I do. I never drained but about two hysterectomies in my life. I closed two cases within the past three weeks where, if vaginal hysterectomy had been performed, I could

not have removed one quarter of the tissue involved. No trouble has followed and no drainage.

Vaginal hysterectomists are arguing away from surgery. I mean by that, they are pleading for drainage; but ideal surgery is that which finishes without drainage. There is not one in fifty of the cases I have seen of vaginal hysterectomies which should have been drained, in which they did incomplete operations, when the abdominal operator would have had his patient in bed with a completed operation in half the time. I have had a vaginal operator acknowledge this: that if he had done the abdominal operation he would have finished it in quarter the time.

Another disadvantage urged by the vaginal hysterectomists is hernias. I do not accept that for a moment—that is, as far as concerns American statistics.

One thing more as to mortality. If necessary, I am perfectly willing to yield the point that a scientific vaginal operator has as good results in this respect as the abdominal. Jacobs' group of operators, the most eminent operators abroad, give 4.6 per cent. mortality. Equally prominent operators in this country, by the abdominal route, give 2.7 per cent. I am perfectly willing to admit that that difference may be reversed in another year's work. The difference is, after all, small; but if there is any real difference, it is in favor of the abdominal operation.

As to getting a patient out of bed early. The claim is made by the vaginal operator that the patient will be home in a week's time. I can take abdominal hysterectomy patients out of bed in one week as well. I contend they will be quite as well fitted to leave their beds as the vaginal. I consider that the patient should remain in bed for a month or six weeks—not only abdominal but vaginal. It is a distinct disadvantage to get patients, on whom vaginal or abdominal hysterectomy has been performed, out of bed in a week; they are not well women at that time. I had a patient operated on by Dr. Jacobs in which he left instructions that she should be out of bed in a week or ten days. The odor from this woman was so foul that I was more than glad to allow her to go home at the end of two weeks. There had been at least a dozen forceps grasping tissues and crushing them—tissues which had to come away by sloughing. How could it be otherwise but that she should have a foul discharge? The stench was so bad that it was impossible to allow a patient in the bed next to her. I never knew a case in which the forceps was used in vaginal hysterectomy in which there was not sloughing and in which an odor did not

ensue and last for several weeks. The patients are always septic, and I stopped doing vaginal hysterectomies because I was afraid to have them lying side by side with good, clean surgical cases by other methods, for fear of infecting the clean cases.

Dr. JOSEPH PRICE: Dr. Polk has given us a very interesting presentation of a subject which concerns us much at present. We are further from a uniform consensus of opinion than we were many years ago as to opening the abdomen. While the old schools of ovariomists were fighting, a few of the pioneers on the subject demonstrated that it could be safely done.

I will say in opening my subject that this procedure was primarily successful in my own hands and has remained successful as I have progressed in my work. Nothing on the vaginal side of the work will shake my faith in the suprapubic method of work as the most complete in detail from beginning to end, and at no time have I had cause to regret clinging to the practiced methods from above. I make this statement from a huge experience with the operations from below—with an experience of fifty-five vaginal operations, with one death—and it may be proper to say that the vaginal operation in no particular compares with the suprapubic method in completion of work. When I say completion I mean completion; I mean an operation which does not begin with an excuse of "properly selected" cases; an operation without an excuse of "inoperable" or "hopeless" or anything of the kind; I mean a case which is from the pathological, diagnostic, and surgical point of view completed. Nothing in the work as practiced from above and our practical working knowledge of intrapelvic disease can be compared in any particular with the incomplete work of the vaginal method as at present practiced. In, say, ten to fifteen per cent. of all operations recorded—taking statistics of operators like Jacobs, for instance, as the one held up to the world as the ideal vaginal operator—he records 5.5 per cent. out of a series of four hundred and three cases, many of them awfully simple; eighty-two removals of appendages, without adjacent or uterine complications, with three deaths; with a series recorded of suppurative, tubal and ovarian disease, one hundred and fifty-seven cases, with twenty-one incomplete procedures—that is, 13.5 per cent. incomplete portions of tubes, ovaries or diseased structure, that should always be removed, remaining in the pelvis. Beginning from above, we all very well know experience shows that omental and bowel adhesions, small and large, alluded to in the paper, are very common. I am talking about the suppurative forms of pelvic disease, whether ectopic, tubal, small

tumors, or dermoids; usually the histories are so clear that the diagnosis is reduced to one of two things. In these conditions we commonly find adherent bowel, sometimes of both sides. Only a week ago I removed the appendix twice in one day, and found it strongly adherent in one case to the sigmoid, and squeezed beneath the uterus in the other. In that case vaginal operation would have been dangerous and incomplete, and would have been followed by pathological lesions, antedating the operation, not corrected, and post-operative sequelæ never recognized. I can not from my own standpoint understand how a surgeon with a large and general experience above the pubis in suppurative forms of tubal and ovarian disease can throw aside or undervalue the numerous complications that he has recognized in dealing with these troubles from above. I have alluded to complications; it is not so much the removal of the ovarian abscess or tubal abscess. Sometimes this is as easy as rolling off a log. Often every rivet has become cheesy and disorganized; sometimes suppurating pus tubes can be pinched off at the cornua. I have repeatedly done this. I look upon the completion of the bowel toilet and the repair of large and small bowel, freeing of all adhesions, as more important than removal of a simple suppurating tube or ovary, and the patients are not relieved or cured if lesions of bowel are neglected or adhesions passed by or overlooked.

As to mortality, we can not compare the mortality of men who do not complete their work with those who do. I here want to allude to statistics; if you are going to simply use the statistics of incomplete procedures, five or thirteen per cent. admitted by the operators themselves, to say nothing about recognized and unrecognized injuries to viscera when they give us fistulæ numbering nine in a series of four hundred operations, and the nine must have occurred in the one hundred and fifty-seven cases suppurative in nature, not in the simple cases. The percentage is enormous of bowel and visceral injuries or fistulæ. In some of these cases, the very case in which the author extirpated a kidney for a ureteral tear, he admits the operation was incomplete in its surgery. Surely this would not have occurred with the suprapubic procedure. These injuries do occur in all of our hands; but we know they do occur, and repair them. Billroth records a case of one third of the bladder and some inches of bowel being excised in an ovariectomy; and these cases would result disastrously, and always so, by the vaginal procedure. The word "inoperable" is a new word coined by the new vaginal school, or Trendelenburg operators. The Trendelenburg position has demonstrated most beautifully how little

they knew about pelvic disease. Again it has demonstrated how very timid many surgeons are both with it and without it. I want to allude very briefly to the enthusiasm of many of these gentlemen early in the history of pelvic surgery. Their work was pleasing, satisfactory, rather ideal in their early reports and records. I am surprised to hear them retract about everything they have said. Nothing is more beautifully recorded than the statistics of Sutton's early abdominal work, one of the best operators in this country. Now he simply rejects all and says no more laparotomies. Probably you will say I am giving an argument for Dr. Polk to come back at me. Much of the complicated work at present is the incomplete or abandoned work so common all over the country. The most trying, complicated work I have to do at present is the incomplete or abandoned operations. I examined two patients yesterday whose abdomens were opened by the most prominent operators in this country; both shook their heads and closed up. They found a few adhesions above. I think they will both be simple procedures. Some men consider operations trying and difficult, others consider them simple. The co-ordination of no two operators is the same; none of us use the same needles or ligatures. Some men can not do an operation without huge retractors and the Trendelenburg table. If you took these away from him he would simply have to go to farming.

A few points in regard to the interesting presentation of this subject—location of infection. Some rather refined methods of presenting this subject have come to us from time to time when to operate, how to operate, where and by whom to operate. My rule whenever I find pus is, and I think the golden rule should be, to remove it. It matters not whether there is acute creamy gonorrhœal pus pouring from tubes when I remove them. All get well. No matter how acute and purulent a peritonitis may be, the procedure is precisely the same. From the lower route I hold that the infection begins at the anus and that the dirty surgery begins there, and that the lower method is dirty from beginning to end. I hold that the tearing and opening of broad ligaments is opening up sources of infection wholly avoidable by the upper method, and that the removal of suppurative forms of disease from below favors fresh infection by incisions in the midst of filth. That in these cases you have a perfectly smooth and, I hold, a healthy and well-drained uterus, and if not healthy and not drained it is an easy matter to make it so and drain from below. But opening up lateral lymph spaces may favor sepsis, and sepsis does follow in many of these cases. Recovery is not so free from complications, the pulse is



not so regular, the skin is not as cool as in the suprapubic methods, and the post-operative sequelæ are much more difficult and dangerous to deal with than by the upper method. I make these statements with an enormous experience on both sides of the pubic arch.

As to free drainers. I remember when my free utterances on this question were condemned throughout the country by the same class of men now claiming so much for drainage by the lower method. I cling to drainage simply because all my patients get well. Of thirty patients operated on very recently all are doing beautifully; they laughed and joked with me to-day when I took out the tubes of some of them. The abdomens are concave, not convex; I never have them convex. They are passing flatus freely. Pulse 75 to 85. While I make this statement I have a mental picture of the conditions which follow the vaginal route.

I am surprised that a general surgeon coming to this Society, in criticism of the work and records of refined surgeons, should bring forward the statements of ignorant truss makers, knowing that they commonly put a truss on a bubo. Dr. Jacobs attempts to settle the question of extra-uterine pregnancy with three cases; with an experience of three cases he extirpates the offending tube and uterus and renders this poor woman sterile. With an experience of one hundred and eighteen such cases I have had four or six return after having had one, two, or three children, for removal of the other side. Just to show the error of such an argument and such council I would refer you to the pamphlet by Dr. Mann. His patient married, conceived, and went to term with a spurious labor and refused operation. The sac shriveled up and became encysted. Her husband died. She married again, conceived twice or thrice and went to term, and was delivered of living children in the presence of an ectopic sac and contents. It then behaved badly and Dr. Mann removed it. But to fortify my position as to the value of the suprapubic procedure I cite this case. In this case, in removing the ectopic sac to save time Dr. Mann asked Dr. Parke, of Buffalo, to do one of the resections necessary. Pause a moment to reflect how disastrous it would have been to do a vaginal operation and, second, to leave unrecognized and unrepaired bowel lesions! To take up the history of gynecology, in the reprints and recorded cases of bowel and visceral injuries you can find these happening by the hundred to the best operators, and the argument for the suprapubic procedure is conclusive. Statistics based on injuries to viscera alone are sufficient to condemn the vaginal operation.



Dr. M. PRICE: I would like to say a word on the question of hernia. I am glad Dr. Ashhurst spoke of this. That same gentleman made a statement that sixty per cent. of abdominal sections resulted in hernias in the first year and twenty per cent. of the remainder during the second, without remembering that I was in his clinic and had no say. I immediately asked him his authority, and he absolutely refused to give it to me. I have since that time visited nearly all the instrument makers in Philadelphia.

Many of my abdominal sections get supporters, as they call them, but have no hernias. There is not a man in this room who has not seen umbilical hernias following a large distention of the abdomen from pregnancy alone. I have further investigated cases of my own that have hernias, and find that half of the women had hernias before the operation. Therefore I say hernia should not be attributed to abdominal section. I have constantly numbers of these cases under observation since that statement was made, and I do not believe that in over three hundred sections I have made of the abdomen myself there is more than two per cent. that are suffering from hernia. But if the treatment by abdominal section and the treatment advised by vaginal operators are compared as time goes on, they will have hernias by the vaginal method to report in plenty; but if cases are kept in bed, as they should be, for four or five weeks, it does not hurt any woman; there will not be one per cent. of hernia following the abdominal sections. As I said before, this gentleman who states that he puts on five or six trusses a day for incisional hernia would not know a hernia if it were stuck before his face. There is not a single operator in this room whose cases do not go either from some nurse's persuasion or some doctors' to have an abdominal supporter made. I do not know certainly, but I think that nearly every case I operate on does. Why? Because the manufacturer or instrument maker is giving the nurse or some one who advises it a percentage. Ten or fifteen dollars are paid for them, and they cost not more than a dollar and a quarter to make, so there is a big percentage in it; he can well afford to pay some woman to induce these poor creatures to go and get a supporter. In vaginal hysterectomy I have found two of the worst hernias. One has complete prolapsus of a larger mass than the original uterus, and this operation was done by one of the best operators in this city. The uterus was extirpated through the vagina; that woman's intestines are out to-day, and I do not see any operation that can very materially benefit her condition, while in all the cases of suprapubic operation the

hernia can be cured, and easily cured, and is being cured by every surgeon in the city, so that the hernia question does not come in for a single moment. There is no doubt in my mind that hernias occur when drainage is used for a long time. Why should they not? It is a desperate case; we are endeavoring to save a life. Hernia is a very small consideration if that is the result of a perfect cure otherwise.

As to deciding what cases should and should not be operated on by the vaginal route—for instance, diseased tubes or ovaries are present—how can any man say in an acute case of gonorrhœal pyosalpinx whether here the tube is diseased or not? He can not do it by touch. I have seen a gonorrhœal tube brought to the surface with pus pouring from the fimbriated extremity, yet it was soft, and had every indication to touch of a healthy tube. If he operates through the vagina, if he tears it loose from its attachment and brings it into view in the opening, he has done more violence than suprapubic operation calls for.

Dr. MASSEY : There is an aspect of this question which has only incidentally developed and one which I do not doubt is of vast importance to the less active operators in the Society, and that is, the question of the diagnosis of purulent disease. That it is a question not easily decided is, I think, evidenced in part by what Dr. Baldy has said : that the majority of cases of suppurative disease operated upon have no pus. They have had pus at one time, but they have none when operated on. That has been my opinion for some time ; in other words, that the majority of cases operated upon do not have encysted pus that demands operation, and of course it becomes a grave question for the original physician who sees the case, or the consultant, to decide whether the woman should be subjected to any of these operations that have been discussed. The discussion develops clearly that there is a difference of opinion as to the nature of the operation, and without being disrespectful I might allude to the proverb in which we are told that where a certain class of people fall out, honest men get their dues.

These discussions are interesting to the men who have cases to present to the operator. Now the natural history of this question is interesting. Originally we heard of nothing but disease of the appendages, and the tubes and ovaries were all taken out ; next it was demonstrated that the uterus was diseased, and that was removed also. After all, it is now shown that the proper surgical procedure is simply to let the pus out. That certainly commends itself to us all. But that it is not always present I am well aware, for hardly a week

passes by that I do not see cases that fall in Dr. Baldy's category which are advised to be operated on. Almost invariably these cases get well under vigorous treatment without operation. The question is not alone, therefore, whether in the operations we shall select a certain method, but whether an operation shall be performed at all, and this can not be decided until we refrain from operations on tubes and ovaries which are particularly easily made because of the slight disease present.

Dr. HOFFMAN: There has been some question here to-night relative to the reason of the procedure so much advocated by Dr. Polk in his paper which has interested us all. I have about come to the conclusion that there is reason in everything excepting abdominal surgery; that men take opinions willy nilly, most of all for the sake of holding or for the sake of getting something new—not because there is any advantage in the method they advocate. I have only to look at this matter of removal of the uterus and its appendages from the studies of certain of those gentlemen a year or two ago who so ably advocated the Trendelenburg position in surgery. That position was held up as the *sine-quâ-non*; with it abdominal surgery was easy, with it you simply had to have your table; you could see everything you wished to do; everything was easy and safe. Every vessel could be tied and every particle of diseased tissue removed. Now, presto! we go below by the vaginal route, we attack everything by faith, not by sight, and this is the safe method. I am struck by the marvelous acrobatic performances of these gentlemen—their high jumps. Now, from this standpoint I say that the position of these gentlemen can not be understood. If an operation gives us every advantage of sight, touch, etc., how can we go to the other extreme and choose an operation by which we must go only by feeling and not seeing? The operation then by the Trendelenburg position was chosen because everything could be removed. Now, as we attack it the other way, these gentlemen—I go to Jacobs' statistics particularly—show conclusively that very much of the tissue that is primarily diseased is left. Therefore the argument below and above crosses again, and the one question is not answered by either operation. So far as complications are concerned, the complications that we most generally meet are best dealt with if we can see the tissues. I simply ask for an explanation and a reason for this thing that does not seem to be explained.

Dr. SLOCUM: I wish to ask Dr. Polk if he has noticed any unfavorable bladder symptoms subsequent to the operation due to contraction of the wound.

Dr. POLK : I congratulate Dr. Massey on being the Diogenes of Philadelphia—the one honest man in Athens who felt that all others erred, that he alone was perfect. Pardon this allusion, but it seems to me that the little proverb to which Dr. Massey referred in this connection warrants such an assumption upon my part.

In reference to the questions which have been suggested by the gentlemen who have honored me by their comments to-night, a good many of them can be grouped and answered together. But first as to that high jump, those acrobatic performances of which the gentleman whom I see opposite me asks explanation. It is with no little satisfaction that I find myself here to-night in a position to respond to that very suggestion, and I say simply this to the honorable gentleman : that if he can lay his finger upon one single statement in this paper which conflicts with those made in other papers—not statements as he interprets them, not statements which he isolates and twists to fit certain preconceived ideas, but statements which any unprejudiced mind would select for comparison—I will stand convicted before him and you.

I will include in my answer to Dr. Noble similar questions raised by Dr. Price : namely, the question, first, of hernia—that is, hernia in the vaginal operation (Dr. Parvin and Dr. Ashhurst having spoken upon the matter of abdominal hernia). In reference to hernia in the vaginal operation, I think we can all answer that question satisfactorily to ourselves if we will simply refer to our many cases of cancer which have been operated upon by the vaginal method. If the members of this Society who have done vaginal hysterectomy for years can find that there is among these cases a sufficient number of hernias to warrant them in condemning the operation, it certainly will be a very strong point against it. Speaking for myself, I confess that I have no such observation to record. We know perfectly well that this, as I believe, theoretical objection formed the basis of the able advocacy given by Dr. Baer to the retention of the cervix in ordinary hysterectomy, and those of us who were skeptics in the matter of vaginal hernia in these cases were unable to convince ourselves, from our cases of total extirpation from above of fibroid tumor or total extirpation from below of carcinomatous cases, that hernia was a sufficiently frequent complication to warrant us in condemning the operation. I have never seen such a hernia where one did not exist as in prolapse prior to operation.

The next question is as to mortality. I believe it is about equal. I do not think there is much difference between them. The question

of opening the free cavity, that matters very little, because, unless you have fæcal escape from the intestine, you will find that, even though you do open into the general cavity in the removal of these structures, no harm is done. You simply raise the hips of the patient sufficiently to prevent the intestines sagging into the opening, and then you will be able to sponge away the pus; and next, by dropping the buttock and elevating the head, you will be able to cleanse by ordinary washing, so that any damage that may be done by purulent escape from these sacs is readily corrected. Rents in the intestines and the escape of fæcal matter is, no doubt, a serious drawback to the operation, for it is easier to repair a tear from above than from below; this every one who has worked with the Trendelenburg posture must confess. But many of these rents occur at points which do not communicate with the free peritonæum—they are walled off. You can tell whether the cavity has been torn into by touch; it is merely a matter of educated touch. Those of us who operated by small incision in the abdominal wall can bear testimony to the fact that the touch can be enormously educated. But spite of all this, pray understand, if you find rents in the intestines and then a tear through your sac into the free peritoneal cavity, no matter how it may occur, if you can not repair that rent in the intestines, and if you can not repair it without any great amount of escape of intestinal contents in the exposed area, it is safer to make an opening from above, then treat your rent. I believe that a good deal of stress is laid on this matter of incompleteness. Dr. Baldy has said he never saw any operator, by this vaginal method, who did not have an incomplete operation. I am sure that Dr. Baldy will remember an operation which he saw me do, and he will also remember that we talked about this matter; he will also recall that that operation was not incomplete.

Dr. BALDY: I remember the case and considered it an incomplete operation. You removed a portion of one side and left the other tube and ovary.

Dr. POLK: The case was one in which a portion of the tube—all but half an inch—and all the ovary were removed from one side, and the other tube and ovary, being sound, was allowed to remain. No ligature was placed around the cut tubes. Without a ligature I can not consider it an incomplete operation, because the tube was not ligated, and in addition to that the other side was sound. As to incompleteness in general, you will find that this matter of incompleteness is one which has been very much exaggerated. I confess that in none of these operations have I failed to complete them according to the



recognized rules of pelvic surgery; but I believe that the man who has had experience above is the individual who can complete the work below far better than one without such experience.

As to adhesions contra-indicating the operation. These are just the cases in which I have had some of my most brilliant results, such as cases of ordinary retroversion of the uterus with adherent uterus, tubes, and ovaries, the latter not being otherwise diseased and the ends of the tube open. In these cases, by opening the *cul-de-sac* and freeing adhesions, I have got some of my best results.

Dr. Noble makes another point which I think well taken, which is that you can do conservative work with more ease above than below. At the same time I believe that with Mackenrodt's colpotomy conservation work can be done as well but yet with less ease. The statement I made in my paper in reference to the operation by the vaginal route being in the interest of the patient more than in the interest of the operator. Can we make a proper exploration from below? I believe we can. Take the kind of case which Dr. M. Price mentioned—that is, a case of inflammation of the appendages from gonorrhœa in which there were no adhesions. You can in an operation above explore the appendages without difficulty, but they can likewise be explored from below; the proximity of tubes to Douglas' *cul-de-sac* is such that a free incision of that sac will enable you to drag the whole of the dilated portion of the tube—in fact, more than half, if not two thirds of the organ—into the vagina. Practically you can make just as good an examination from below as from above. The next question relates to the matter of removing these masses without breaking up the outlying lymph capsule. The chances are that you will break through it in many cases, but we all know there are cases in which you do have a barrier of adhesions which extends beyond the uterus and appendages, uniting coil after coil of intestines quite up to the anterior abdominal wall.

We speak of the matter of convalescence. This question of convalescence is one which is largely subject to the patient's sensations. My observation is that the patients who are operated on by vaginal extirpation convalesce more quickly; and I think if the gentlemen who have raised objections upon this point will simply refer to cases of carcinoma of the uterus in which the carcinoma was not so profound as to produce profound cachexia, they will say that the convalescence after hysterectomy in such has been much quicker than in their own cases of laparotomy. I can only repeat that it is my own experience, although Dr. Baldy, I see, does not agree that it has been his.



I come to the questions raised by Dr. Price. The first is one of experience. Now, gentlemen, this is a matter of relative importance you all have experienced. I suppose that we can just set one experience against another, and it will become then simply a matter of personal equation. The doctor raises the question as to the incompleteness of these operations now as compared with present laparotomies. The doctor forgets that when he himself began to operate he did occasionally have some incomplete operations. I presume that was the experience of all surgeons at the outset of abdominal section; we did not know where we were. We did not know how to get at things. We all know Dr. Price is a wonderful operator; but at the same time, if he never had an incomplete operation at the outset, he is the sole exception in the country. All that I can say is that so far I have not had a single incomplete vaginal operation, and I have now done seventy. This, of course, gentlemen, is a statement to which you must attribute just as much truth as you do to the statements of Dr. Price or to the statements of any other gentleman who has seen proper to speak on this subject.

The next question is upon the word inoperable. Dr. Price is mistaken; this is not a word coined by the advocates of the Trendelenburg posture. It was coined by people in the early days who were trying to do work, and who, to use the doctor's very expressive word, "flunked." They did not know where they were; they would shut up the abdomen and say, "It can not be operated on." That was an old phrase in use before we began to use the Trendelenburg posture. I have yet to see a single man, Dr. Baldy excepted, who, using the Trendelenburg posture, calls a single case inoperable, carcinoma excluded.

The question comes next as to the chances of infection being greater below than above. There is no doubt that there is a greater chance of infection from below than above, for the reason that you are working between the two great sluices of the body, but at the same time if the technique advocated in these cases is carried out, I am satisfied that the matter of infection can be completely eliminated, and that is all that you can say in reference to working above. You have got to follow out the A B C of the technique of the process. You see sepsis no more in these cases than you do in the abdominal. I must again ask the gentlemen who have done the vaginal operation for initial carcinoma whether the condition after the operation has not been quite as good as presented after abdominal section.

The question of visceral injury I answered in speaking about rents. There is danger of visceral injury, but we can remedy this.

Now as to the question of retraction. The doctor (Price) asks how a man who has written papers and spoken for conservative operations can advocate total extirpation of everything in connection with suppurative disease. No man can be responsible for the interpretation which his enemies choose to put upon his utterances. He can only ask his friends and his enemies alike to refer to the utterances as he made them and compare them line by line, word by word, emphasis by emphasis, and see if there is any conflict to be found therein. I can only say that, judged by such a standard, I shall be most happy to accept any verdict which he arrives at. Of course we know perfectly well that there are questions involved in this entire subject upon which we have marked differences, but they are not upon the low plane suggested by Dr. Massey. They are differences of teachers of science, of men who are engaged in the highest work that God has given men to do and who bring to it all of the fervor and all of the truth and all of the strength which has been given them, and they present their views in open court where they can be discussed by their opponents, by men who understand the questions as well as they, and who, actuated by the same high principles, know where the right lies and where the wrong. This, Mr. President, is the plane on which we stand, and in this connection let me predict of the able and distinguished men who are engaged in the same endeavor which we are. Though we may differ on what we deem essential points in this subject, I am satisfied, after a thorough revision of the entire subject, after bringing to it all of the acumen and all of the skill which they so eminently possess, that they will reach the conclusion that there is far more of advantage to the patient and far more of power to themselves in these propositions than they are willing to concede to-night. Resting in this conviction, I am more than willing to leave this pregnant subject in their keeping.

Official Transactions.      FRANK W. TALLEY, M. D., *Secretary*.

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TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL  
SOCIETY.

Stated Meeting, November 22, 1895.

The *President*, E. C. DUDLEY, M. D., in the Chair.

*Exhibition of a Specimen of Parovarian Cyst.*

Dr. HENRY T. BYFORD: I have not had an opportunity to examine this specimen carefully, because it was removed this afternoon. The patient came to me several months ago, and after an examination I diagnosed fibroid of the uterus and recommended an operation. She lived in the country, and did not return to me until a few days ago. In the meantime she had become greatly emaciated, was vomiting, and in the last stages of exhaustion. At this examination I made a diagnosis of large parovarian cystoma. The whole abdomen was distended by fluid. Upon opening the abdomen I entered the cavity of an adherent cyst, from which a couple of pailfuls of apparently pure blood came out. I punctured numerous smaller cysts from within the main one. I then found that the main cyst had extended up as far as the diaphragm upon her left side, where it was attached. I could not get down into the pelvis at all, as the parts were adherent from the median line to the left side of the pelvis. On the right side I found a small peritoneal cavity. I separated the adhesions superiorly, and stripped off and ligated a large part of the omentum. I then pulled up the uterus, which was bent down in the *cul-de-sac*, and found the immense mass continuous with the anterior wall of the uterus. I found I could not get it out without amputating the uterus, which I did, and left a small portion of the cervix. A ureter was accidentally caught in a ligature, cut, and then stitched to the abdominal wound.

The tumor is apparently made up of trabeculated structure with small cysts in it. It developed between the bladder and cervix and in the left broad ligament, and every part of it was so firmly adherent that I could not tell what was peritonæum and what was not. The bladder was in front of the tumor, against the pubes, and the ureter ran around the pelvic brim.

An interesting point is the manner in which the tumor seemed to grow from the uterus. I thought it was a fibro-cystic tumor of the uterus with a short, thick pedicle, until Dr. Wathen, who was present

at the operation, expressed the belief that it was a broad-ligament cystoma which had pushed in between the bladder and cervix and grown into the superficial layers of connective tissue. I think his opinion is correct. You will notice that the tumor contains a large amount of tissue, and that a good part of it is as solid as fibroid tissue, so that the growth might be easily mistaken for a uterine fibroid. In fact, there is a little fibroid tumor protruding from the fundus of the uterus. The uterine cavity was four and a half inches in length when I first saw her. The tumor then did not reach the umbilicus, was hard, moved with the uterus, and was attached to the anterior uterine wall, so that one could not but think it was a uterine tumor.

#### DISCUSSION.

Dr. HENROTIN : Why did you cut the ureter?

Dr. BYFORD : The ureter extended along the pelvic brim, and apparently entered the abdominal ring, and until the tumor was cut off was thought to be the round ligament. As I applied my ligature I included a kink of it and snipped it off.

Dr. HENROTIN : You recognized the ureter as soon as you cut it?

Dr. BYFORD : As soon as the tumor was out of the way.

Dr. ETHERIDGE : Did you secure the distal end of the ureter?

Dr. BYFORD : Yes, both of them, intending to perform the operation of Dr. Van Hook afterward. I should have done it immediately had the patient not been in such an exhausted condition.

Dr. NEWMAN : Did the mass surround the uterus?

Dr. BYFORD : The uterus was behind and under it.

Dr. NEWMAN : It grew from the anterior part of the uterine wall?

Dr. BYFORD : Apparently.

Dr. WILLIAM H. WATHEN, of Louisville (by invitation) : Mr. President : I am unable to discuss the case reported by Dr. Byford as intelligently as I would like to do. I only saw the woman after she was on the operating table. The specimen exhibited was undoubtedly an intraligamentous cyst, arising on the left side, having become firmly attached to the uterus and adjacent structures. It is an unusual case of its kind, and while I have read the histories of a great number of intraligamentous cysts, and have operated upon many cases, I have not observed one that was so formidable to deal with as this. The sac wall was so intimately connected with the capsule that it was impossible to say where the capsule ceased and where the cyst wall began. Furthermore, this case was remarkable in that hæmorrhage in

the sac had increased in quantity within the last two months, until the four gallons of liquid contained in the cyst was probably three fourths blood. The woman, because of the excessive hæmorrhage, was in a very feeble condition, and not prepared to stand much shock. The tumor was universally adherent, and the ureter had been displaced by the unfolding of the broad ligament, and instead of lying behind, a little to the left of the sacro-iliac synchondrosis, it was in front to the left of the anterior part of the pelvis, and because of the confused condition of the tissues the operator was unable to see the ureter until it had been ligated and the tumor removed. The operation was performed as dextrously as it is possible, and I dare say the ureter would have been injured had any one of us been operating.

We will occasionally find reports of operations for the removal of intraligamentous cysts where the conclusion is reached by the surgeon that they are very easily removed. Some of them are easily removed, and there is no operation more beautiful and successful. They are shelled out, as it were, with no trouble; but the next case may be so difficult that it is next to impossible to remove the cyst, and of all the difficult cases I have seen this case was the most difficult.

Dr. T. J. WATKINS: I would ask Dr. Byford if he used drainage, and, if so, what method of drainage he employed?

About two weeks ago I operated upon a case where there had also been a very severe hæmorrhage into a broad-ligament cyst. Indeed, the hæmorrhage had been so severe that the cyst wall had become necrotic, and the necrosis had produced peritonitis, which gave the symptoms of intestinal obstruction. It was impossible to account for the hæmorrhage. The cyst was not specially large—probably six or eight inches in diameter.

Dr. HENRY T. BYFORD, in answer to Dr. Watkins: A drainage-tube was inserted in the lower end of the wound. The veins were very large in the tumor, and the interference of the pelvic adhesions must have ruptured the capillary veins. This is the only way I can account for the hæmorrhage into the cyst.

#### *Dermoid Cyst of the Omentum.*

Dr. E. C. DUDLEY: This tumor is peculiar only in being a dermoid cyst of the omentum. In breaking up adhesions between the left Fallopian tube and the left broad ligament I found, walled in by these adhesions, this small, hard, calcareous body, which as you see is about a quarter of an inch in diameter. I can not explain its source nor can I account for its presence in that locality.



*Uterine Myoma.*

This uterine myoma, weighing about ten pounds, was removed to-day. It was complicated with an ovarian tumor on the right side, this tumor being in two parts, one part solid and the other cystic. The cystic portion was filled with black grumous blood. The adhesions were abundant, and altogether the case was rather an ugly one for operation. The entire uterus, including the cervix, was removed and the vaginal wound left open with a gauze drain. The abdominal wound was closed without drainage.

I take this occasion to record three other cases of abdominal section for the removal of uterine myomata. The operations were on November 4th, 5th, and 6th.

CASE I was of many years' standing. Electrolysis—electro-puncture—has been repeatedly used. This treatment had been followed by extensive, almost fatal pelvic peritonitis. There had been so much inflammation of the tumor itself that it could not be easily shelled out of its capsule. On account of extensive adhesions to the abdominal viscera and the inaccessibility of the field of operation and the bad condition of the patient, the operation presented unusual difficulties. The tumor and the entire uterus with its appendages, which were diseased, were removed. The operation necessitated great traumatism in the pelvis. The pelvic cavity was packed with gauze. This gauze was carried down into the vagina and left as a capillary drain.

CASE II.—The next case, on November 5th, was very much like the preceding one, although the tumor was somewhat smaller and there were no adhesions. Both tubes were distended with fluid, and each ovary was as large as the double fist. The tumor, the entire uterus, and its appendages were removed. The stumps were drawn down into the vagina and held there by sutures. The vaginal and abdominal wounds were thoroughly closed with catgut sutures. No drainage.

CASE III.—On the following day the third case presented itself, with a perfectly round, globular myoma as large as a double fist springing from the anterior wall of the uterus. This myoma was removed by an incision through the corpus uteri, precisely such as would be made in a Cæsarean section. The tumor having been enucleated, the cervix dilated, and the granulations curetted out of the uterus, the cavity of the uterus which communicated with the uterus wound and the vagina were packed with a gauze drain. The uterine wound from which the tumor had been enucleated was then closed

as in Cæsarean section, the entire uterus was dropped back in the pelvic cavity, and the abdominal wound was closed without drain. The Fallopian tube and ovaries were preserved intact.\*

I have presented these three cases for the purpose of illustrating the fact that there can be no stereotyped operation for uterine myoma. Each case must furnish its own indications for the particular operation which applies to it. Sometimes the entire uterus and its appendages must be sacrificed; often they may all be preserved; sometimes the cervix uteri may alone be left. In certain cases the injury to the pelvic peritonæum is so great that drainage is necessary; in other cases the injury is so slight that when the ligatured stumps are drawn down into the vagina and the vaginal and abdominal wounds are closed there is no peritoneal traumatism save the united wounds.

The modern tendency is properly on the side of vaginal drainage as against drainage through the abdominal wound. When no opening has been made into the vagina in the course of the operation proper, I would almost favor as a general proposition that such an opening be made there, posterior to the cervix, for the purpose of drainage. Two advantages of this plan are, first, better drainage; second, complete closure of the abdominal wound and consequent rapid convalescence, with the minimum risk of ventral hernia.

In myomectomy the uterus should, if possible, be saved when the tubes and ovaries are healthy. When the appendages have to be removed the uterus may as well go with them, especially if its removal facilitates drainage or in any way renders the operation safer; but the great point of these three cases is that we must not be bound by any stereotyped operation.

#### DISCUSSION.

Dr. FERNAND HENROTIN: I had the honor of seeing the President (Dr. Dudley) remove the specimen exhibited. The operation was a very difficult one—one that was apt to give trouble to the most experienced operator. If our President always operates in the masterful way which he did in this case, we have made no mistake in selecting him for our President.

I wish now to say a few words regarding the third case he reported—namely, the one of intra-uterine fibroid tumor. He operated in a manner described in a paper by one of our Fellows (Dr. Senn) as laparo-elytrotomy, for the purpose of removing, after the manner of a

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\* The patients whose operations are above described have recovered.

Cæsarean section, a fibroid tumor within the uterus. I wish to draw the attention of the Fellows to the fact that it is not generally known how well and how successfully such tumors can frequently be extracted through the vagina. Fibroid tumors the size of two or three fists, if properly attacked, according to recognized modern methods, by splitting up the cervix, if necessary, by detaching the uterus from the bladder in front, and by splitting up the body of the uterus, can be enucleated from the uterine cavity after properly splitting the capsule. When such cases are thus successfully managed, the after-results of the operation are very frequently much more satisfactory than after abdominal operation.

Dr. WILLIAM H. WATHEN, of Louisville (by invitation): As I had the pleasure of seeing Dr. Dudley operate this morning for the removal of this large uterine myoma, I wish to say a few words. The other gentlemen present will agree that it was as difficult an operation as we will be called upon to perform, inasmuch as it was complicated by an ovarian tumor with a large ovarian hæmatoma. What I wish to speak of especially is the perfection of this operation in very large women, where the abdominal walls are probably four inches thick. With the woman in the horizontal position the arteries were ligated, the uterus separated from the bladder and vagina and removed, and the cut surfaces covered by peritonæum, so as to leave no open connective tissue spaces for infection. A small opening was left in the vagina, through which the peritonæum was drained with gauze. This case demonstrates conclusively that the Trendelenburg position is not necessary to enable a good abdominal surgeon to perform total hysterectomy, to ligate directly and safely all vessels, because I can not imagine a case more difficult. The technique of the operation was so perfect that I can find nothing to criticise.

Dr. DUDLEY: I desire to thank the gentlemen who have so kindly discussed my remarks on myomectomy. One word relative to the operation of *morcellement* in the vaginal operation for uterine myoma. This operation has recently attracted, and is attracting, much attention in Europe. I think it is generally regarded as a recent addition to our resources. It is, however, the revival of an old operation performed and described in all its essential details by Emmet more than a quarter of a century ago. I fully agree with what Dr. Henrotin has said about the advantages of the removal of these tumors through the vagina when that route is practicable—and it is practicable much more frequently than is generally supposed.

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## EXHIBITION OF INSTRUMENTS.

*A New Curette.*

Dr. HENRY T. BYFORD: Last summer I performed hysterectomy upon a woman whose uterus had been punctured by another operator in trying to curette for the relief of pregnancy. On one occasion I also punctured the uterus myself while curetting for cancer of the cervix, and I presume most of us have done it at some time or other. At the present time there is a difference of opinion as to whether a sharp or dull curette is the best. I usually recommend, however, a dull copper curette, for the reason that the majority of practitioners will do more or less harm with a sharp steel curette. A sharp curette can be made to take away enough tissue and no more, if properly used. If it is used, however, by an operator with but little experience, as is often the case, it will scrape away more tissue than is necessary, cicatricial contraction will take place in spots, and permanent impairment of function result.

I have here a modification of the sharp curette, which might be called the safety curette. With this instrument you can not go beyond a certain distance before the tissues strike the bottom of the spoon. It acts on the same principle as a safety razor. You can curette the uterus without danger of puncturing it. The stem is flexible, so that great force can not be used without bending it. I do not like the stiff stems to curettes, because we can not turn the instrument round and curette both the anterior and posterior walls of flexed uteri.

*A Case of Undescended Ovary and Tube, with Sactosalpinx Purulenta Profluens.*

By M. L. HARRIS, M. D.

(See page 45.)

## DISCUSSION.

Dr. C. S. BACON: I am not able to contribute very much to the paper of Dr. Harris. I am certainly surprised that the number of reported cases is so small as has been stated by him. The condition, arising as it does from lack of development of the Wolffian ridge into the broad ligament, would lead one to suppose that the condition is much more common, since other developmental failures are not rare. It is interesting to note also that the condition occurs only on one side. A case that I once had charge of may be reported in this con-

nection. The case was one in which there was non-development of the uterus with both ovaries adherent to one side of the pelvis. The uterus was represented by a very small band of fibers that were with difficulty discovered. After the specimen was removed from the body the ovaries were there plastered, as it were, to the left side of the pelvis, rising just above the brim of the pelvis. That was the condition which was found after death. The patient was operated upon for another condition—namely, purulent abscess of the ureter and pyonephrosis. The patient had for many years suffered periodically, and some years before, I opened the abdomen with the expectation of finding diseased ovaries. The patient had no vagina, simply the external genitals, and otherwise she was fairly well developed. Shortly after the operation for the relief of pyonephrosis the patient died from shock and hæmorrhage. Autopsy showed the ovaries small and rudimentary, lying behind the peritonæum, just at the brim of the pelvis on the left side. The numerous developmental anomalies found in this case I do not now consider, but simply call attention to the fact that the failure of development of the Wolffian ridge into the broad ligament is generally combined with other malformations.

Dr. EMIL RIES: I have seen only one case similar to the case reported by Dr. Harris. It was a case of ovarian cyst in which the ovary had not normally descended. The ovary was fixed in the region of the left kidney near the diaphragm. It had a very long pedicle which was formed by the ovarian ligament and the Fallopian tube. In cases where the descensus of the ovaries is defective it is to be expected that we will find deficient development of the genital tract and observe the condition of the Fallopian tubes which Freund has described, and which we always find in immature individuals and sometimes in apparently well-developed persons. The case of Dr. Harris is particularly interesting, as defect of development occurred on one side only.

While I was very much interested in this question of defect of development, I examined a large number of adult bodies and a considerable number of embryos. I found diversities often beginning in the embryo. Sometimes the tube on one side was better developed than the one on the other side. I should have to go too far into the work of Prof. Freund in order to give a full account of the important facts with reference to the development of the tubes, and I wish simply to add that it is rare to find an undeveloped state of the tube in an adult on one side with the other side perfectly well developed.

The case of Dr. Harris is interesting because of the combination



of malformations. The cæcum was not as low down as it usually is. In the embryo, as is known, the cæcum is situated high, near the diaphragm, and during embryonic development it grows down as far as the iliac bone, and usually the movement of the ovary and tube is in combination and in direct relation with that of the cæcum. In this case both were defective. The cæcum had not gone down sufficiently and the ovary and tube had not normally descended. I agree with Dr. Harris in his opinion of the case, but I should nevertheless like to dwell for one moment upon the ætiology of these cases of immature development. It might be said that this condition is not a congenital mal-location. This patient has been pregnant several times, and during pregnancy, while the fundus of the uterus goes upward, the uterus takes along with it the ovary and the tube. Could not, after the confinement, the ovary and tube have been fixed by acute inflammation where it was found later on? We know that such inflammations can exist without making very distinct and acute symptoms, and in later years we find that there is some trouble about the tubes. That might have happened in this case, but, as I have before remarked, I share the same opinion with Dr. Harris, and from the same causes which he has given. He has told us that there were no adhesions between the inflamed tube and its neighborhood. He has also given the most important symptom to us—that is, the direction in which the ovarian artery extended. If there had been inflammation which had fixed the ovary and tube in the place where he found them, it could not have taken place along the ovarian artery. The abnormal course of the artery must be congenital, and proves the correctness of Dr. Harris' view of the case.

Dr. HENRY P. NEWMAN: It has been my fortune to have seen one case of non-descent of the ovaries in the dead-house in St. Elizabeth's Hospital six or seven years ago. Here I had the opportunity of opening the abdomens of a large number of females, and among them was an elderly woman in whom both ovaries were extremely rudimentary and low down in the lumbar region, on both sides of the spinal column, with the tubes extending downward from this. The woman had been in the hospital but a short time and died from natural causes or advanced age. Nothing could be obtained in regard to her menstrual history. I was impressed with the rudimentary condition of the uterus and vagina, but the external genitals were fairly well developed. The condition of the uterus and vagina may have been from atrophic changes due to advanced age, and not from a congenital want of development. The case was an interesting one and called to mind

another case which I had not many months previous of congenital defect. The woman, who had been married five or six years, had no vagina and a very small uterus, the latter being as large as my thumb. My experience with the case was this : She came with her husband to me to see whether something could be done for her. It was impossible for coition to take place through the regular channel, and since marriage, about five years, sexual intercourse had taken place through the urethra. This became very unsatisfactory to the husband, and he said that unless something else could be provided he would leave his wife. At that time, in making the usual bimanual examination, the finger being in this case as easily introduced into the bladder as into the rectum, I readily made out the uterus referred to, but could not find any ovaries ; consequently I considered that any operative procedure which would establish an artificial vagina, so as to keep the husband and wife together, was all that could be done. I therefore did a plastic operation, dissecting up the rectal from the vesical wall to this rudimentary organ, when I came upon uterine tissue, but could find nothing in the nature of a cervical canal, and simply kept it (the newly made vagina) open with a glass plug, and it seemed to satisfy them for a time. Subsequently contraction occurred, the cavity was almost obliterated, and, sexual intercourse being impossible, the husband left the wife. I now think that it was a case of non-descent of the ovaries. There probably were ovaries, inasmuch as their entire absence is an exceedingly rare condition. In exploring the rectum I felt a band of tissue extending downward identical with the case just described. The case resembled so closely the one I had seen in the dead-house that I now believe these bands were the tubes extending downward from the ovarian structures and as high up as the lower lumbar vertebra. The case I saw in the dead-house can not be satisfactorily reported on account of not knowing the previous menstrual and childbearing history.

The case of malformation was reported in the *North American Practitioner* some six years ago as one of probable absence of the ovary with a rudimentary uterus.

Dr. M. L. HARRIS, in closing, said : The point raised by Dr. Ries of the possibility of the ovary having been raised up during pregnancy and retained there by adhesions has been well answered by himself. The disposition of the infundibulo-pelvic ligament, the ovarian artery and pampiniform plexus, and the great length of the isthmus of the tube, absolutely exclude any such possibility.

Official Transactions.

T. J. WATKINS, M. D., *Editor*.

## PÆDIATRICS.

## AMERICAN.

*The Use of Antitoxic Serum for the prevention of Diphtheria.*

Dr. H. M. BIGGS (*Medical News*, November 30, 1895) states that while great interest has been aroused during the past year by the discovery of a specific remedy for the treatment of diphtheria, comparatively little attention, however, has been paid to its value in the prevention of that disease, and the few reports of its use for this purpose, published in Europe, have been inconclusive or disappointing. The antitoxine produced by the New York City Health Department has been employed for the immunization of a large number of children, both in public institutions in this city and in private families, under conditions particularly favorable for demonstrating its exact value, and the results have been in many respects remarkable. It has been employed in public institutions both to control outbreaks of diphtheria and as a routine measure to protect inmates when there was evidence of possible or previous exposure to disease. The amount employed in each case has varied from fifty to six hundred anti-toxine units, depending upon the age of the individual. Behring recommended in November last that one hundred and fifty units should be employed for immunization, but added that in persons already infected and near the end of the incubation stage even six hundred units might not entirely prevent the disease, as then it became a remedial agent and not a prophylactic. The period of incubation of diphtheria, however, is not known. It probably does not exceed forty-eight hours. As to the period of protection following the immunizing injections of the antitoxine, Aronson thinks the protection lasts three to four weeks, Kossel two to three weeks. From the observations of the author, it would seem to be usually at least thirty days.

*Experience at the New York Infant Asylum.*—In September there were sixteen cases of diphtheria, and from this time to January 16th (one hundred and eight days) one hundred and seven cases occurred. These developed at the rate of about thirty a month. Systematic bacteriological examinations of the throats of the healthy children showed that diphtheria bacilli were present in so large a number that, in order to isolate these, nearly one half the inmates were quarantined. All efforts to check the epidemic having failed, antitoxine was employed for immunization. On January 16th two hundred and twenty-four

children were immunized with antitoxine ; from this date until February 15th only one case of diphtheria occurred ; from this time until February 27th five cases appeared ; at this time the antitoxine was administered again to two hundred and forty-five children. As contrasted with one hundred and seven cases in one hundred and eight days before immunization, there occurred five cases of mild character in one hundred and twelve days after the second immunization.

The antitoxine serum was also used for prevention of diphtheria in the Nursery and Child's Hospital, New York Juvenile Asylum, New York Catholic Protectory, Bellevue Hospital, and by the Health Department inspectors, with the following results : Total number observed, ten hundred and forty-three cases ; two hundred and twenty-four of these were immunized twice, the first time with Behring's serum and the second time with the New York Health Department serum. In many, diphtheria bacilli were present in the throat when the serum was administered, and all had been exposed to diphtheria under conditions more or less favorable for the transmission of the disease. Among those immunized, three cases of diphtheria occurred between one and thirty days after the treatment, and thirteen in from thirty to one hundred and ten days after immunization—that is, sixteen among ten hundred and fourteen immunized. These cases were all mild excepting two, one of which proved fatal from diphtheria, and in the other death seemed to be due to broncho-pneumonia, complicated by a mild diphtheria.

During ninety days preceding immunization, under practically the same conditions, it may be said that more than two hundred and twenty-five cases of diphtheria occurred. By the use of the antitoxine it has been possible to stamp out completely diphtheria in four great institutions for the care of children in which it was prevailing in more or less epidemic form. In no instance has there been, so far as can be determined, any serious results from the administration of the remedy for this purpose.

The duration of immunity is apparently not more than thirty days, but it may be for a much longer period.

The doses required are probably between fifty and three hundred antitoxine units, according to the age of the individual treated.

*Pseudo-meningitis ; A Remarkable Recovery.*

Dr. J. C. KING (*Southern California Practitioner*, October, 1895) reports the following case : Child, male, six months old, raised on artificial food. Mother delicate. Father died of tuberculosis prior to

child's birth, July 26th. Diarrhœa for some days, irritable, no fever.

July 27th, symptoms improved.

August 1st, relapse, fever frequent, liquid stools, very irritable.

August 4th, diarrhœa ceased. Temperature  $102.5^{\circ}$ , skin cool, head hot, nape of neck sensitive to pressure, marked opisthotonos, head rolling from side to side, mouth hanging open and tongue protruding and rolling, occasionally cephalic cry, at other times exceedingly restless and irritable. Fontanelle open, bulging, and pulsating. Abdomen retracted. Urine infrequent and scanty, leaving brick-dust stain on diaper. The child has a large head and poorly nourished body.

Diagnosis, meningitis. Case getting worse. August 8th, temperature  $103^{\circ}$ . Cerebral symptoms accentuated; much prostration.

Dr. Price saw the patient with the writer. Joint diagnosis, meningitis. Dr. Price examined prepuce, which had been overlooked.

Phimosis with pinhole orifice was found. The consultant advised immediate circumcision. The writer declined.

The next day the patient was much worse; medicine inefficacious. Prognosis unfavorable. Decided to circumcise. This was done immediately under cocaine. Same day child free from fever; urine abundant; slept quietly for two hours during afternoon. No sudden cries, rolling of head, etc. No pulsation or bulging of fontanelle. In short, improvement was sudden, continuous, and complete.

That true meningitis can be cured by circumcision passes credence, notwithstanding the modern apotheosis of reflexes.

That a case of "encephaloid" so closely resembling meningitis as to be indistinguishable from it by three ordinarily well-posted physicians did recover immediately after the patient was circumcised is a fact.

#### *Trismus Neonatorum.*

ROSENTHAL, EDWIN (*Codex Medicus*, Philadelphia, September, 1895), cites two interesting cases of this rare disease.

CASE I.—The labor was normal in every respect and under most favorable hygienic surroundings. The child weighed ten pounds six ounces. Umbilicus dressed with boric acid and lint. Separated on fourth day, leaving umbilicus dry and clean. On the fifth day the child showed difficulty in nursing, attempts to feed it with spoon or nipple producing rigid contractions not only of the muscles of mastication but also of the orbicularis oris, rendering feeding impossible. General treatment was begun, but without any benefit. The contractions increased in extent and severity, involving all the



muscles of the face, until the whole countenance seemed to be drawn to a common center, the wrinkles radiating from this center in transverse folds, like the spokes of a wheel. General muscular rigidity followed until the entire body was in a state of spastic contraction. The temperature rose to  $110^{\circ}$ , all symptoms increasing and the child dying forty-one hours after the onset from asphyxia.

CASE II.—Born twenty days after preceding case. Labor easy; no injury to mother or child. Weight, ten pounds. Apparently strong and healthy. Cord aseptic. On the sixth day difficulty of deglutition noticed, quickly followed by rigidity of the jaw and convulsions. The manifestations during a paroxysm were similar to former case: face much distorted, eyebrows wrinkled, jaw closed, rigidity of muscles, etc. Death took place on the eighth day, being fifty-six hours from time of onset, despite active measures in the shape of hypodermic injections of chloral, enemata, etc.

Trismus neonatorum proves fatal in the majority of cases, the spasmodic phenomena, together with the interference with nutrition, rapidly leading to collapse. Post-mortem examinations show no characteristic lesions. Among the causes of the disease Kenoch mentions (1) injuries which usually affect the umbilicus; (2) thermal irritants to the skin; also exposure to cold.

Nicolaier, in 1884, discovered the bacillus of tetanus, and Kitasato has since been able both to isolate and cultivate it. The habitat of this bacillus is in garden earth, manure, and in mortar. The earth in certain districts seems to contain the bacillus in greater quantities than in others, and hence the probable cause of "epidemics" in different localities. In these cases the rooms were adjoining large gardens.

Of medical treatment little can be said. Kenoch saw two cases recover under chloral, but in the cases reported it was ineffectual. Prof. Vaillard predicts a wide field of usefulness for the anti-tetanic serum in preventing tetanus among the newborn in some countries of northern Europe, where it is said at times to have a mortality of sixty per cent.

Dercum suggests thymus juice, if the antitoxic tetano-serum can not be obtained, on the ground that, although the bacillus live in thymus infusion, they do not develop spores, and that animals inoculated with such cultures were made highly immune to the culture of tetanus grown in other media.

## FOREIGN.

*Cerebral Hemiplegia following Whooping-cough.*

Dr. NEURATH (*Medical Week*, November 22, 1895) presented at the meeting of the Medical Club three children suffering from cerebral paralysis as a result of whooping-cough. The first, eighteen months, presented a typical picture of cerebral hemiplegia. The second, aged two years and a half, had an attack of whooping-cough, convulsions, and paralysis of the entire body at six months of age. At present there only remains facial paresis and exaggeration of the reflexes of the lower extremities. In the third patient left cerebral hemiplegia developed progressively after an attack of whooping-cough; this patient also presented a systolic murmur over the apex of the heart, and exaggeration of the expiratory murmur. The cerebral lesions in these cases are probably analogous to encephalitis supervening in influenza.

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## THE STATUS OF GYNÆCOLOGY ABROAD.

## FRANCE.

*A Case of Frequent Micturition, due to a Partial Retention of Urine, cured by Massage.*

CÉCILE LEDER (*Arch. de toc. et de gyn.*, No. 9, 1895) reports the case of a woman fifty-one years of age who, six months previously, had been treated for vesical catarrh. Her bladder had been frequently washed out and applications of nitrate of silver had been made. Notwithstanding this treatment, she steadily grew worse and suffered from an intense desire to empty her bladder every five or ten minutes. As she could pass but a few drops at a time, these efforts gave her no relief. The agonizing pains which she felt in the lower part of the abdomen prevented her from walking and made it almost unbearable to assume the erect position. In order to give her any relief, it became necessary to catheterize her two or three times a day. In fact, for six months she had been unable to empty her bladder without the aid of a catheter.

When she was seen by the author she was unable to walk or to stand for any length of time. The abdomen was swollen and hard

and presented the appearance of an ovarian cyst or of advanced pregnancy. By an examination it was not difficult to determine that the swelling was caused by a distended bladder. She complained of pain in the hypogastric region, of difficulty of respiration and of insomnia, but suffered no pain in urinating. The catheter had not been used in fourteen days. It was then introduced and a quart of urine was removed. The urine had undergone no decomposition and contained no albumin or sugar. The writer then applied massage to the bladder. It being in the morning, another treatment was given in the evening. Urine had been voided but twice during the day and with more satisfaction. The retained urine amounted to three hundred grammes.

The next morning it was found that the patient had slept better; had only urinated once during the night and twice during the morning. The amount voided was much greater than formerly. Massage was then given for the third time. The patient urinated immediately after and emptied the bladder completely without the aid of the catheter. During the evening of the same day the patient arose from bed and walked about. That night the bladder again became distended and painful and she was unable to empty it. Massage was given for the fourth time. She slept well and passed urine abundantly with no pain.

After massage had been given ten times she declared herself perfectly well and has remained so ever since.

*A Large Tumor of the Ilio-femoral Region caused by Hernia of the Fallopian Tube.*

B. J. KOUSMINE, of Paris (*ibid.*), contributes an interesting article under the above heading. The patient was thirty-six years of age. Her family history was good. Her menstrual periods were always extremely painful and occurred at intervals of two weeks and lasted for two or three days. After marriage the dysmenorrhœa became more severe; the pain in the sacrum and in the left iliac region became intolerable. The patient sought medical advice without benefit. In despair, she consented to try massage at the hands of a peasant woman. This consisted of a kneading of the abdomen of the roughest kind. Two days after this treatment a slightly projecting tumor was discovered, situated just below Poupart's ligament. The tumor at first caused little inconvenience but soon attained such dimensions that it prevented the patient from walking, and relief was only obtained in the recumbent posture. Upon admission to the hospital

she presented a visible tumor about the size of a man's fist. This could be felt in the pelvis to be about the size of a cocoanut. The whole mass seemed to be divided into two cavities which communicated with each other. The upper portion was quite mobile, while the lower seemed fixed. Upon incising the lower portion of the tumor, about two litres of purulent fluid escaped. By introducing the finger, it was found that the hernia consisted of an enormously distended Fallopian tube. The incision was then increased, and the cavity enlarged and cleansed and packed with iodoform gauze. The general health of the patient immediately began to improve, and in five months the sinus had completely closed.

According to clinical records, it seems that femoral hernias of the Fallopian tubes alone are more frequent than hernias of the inguinal region. Only five other cases are reported. The first case of undoubted femoral hernia of the Fallopian tube was recorded by Bérard in 1837. Here a large tumor was found in the groin of the right side. It had a large base and a conical protuberance resembling a mammary gland and nipple. It was larger than a hen's egg. The skin which covered it had preserved its natural color and thickness, except over the nipple mentioned where it was very thin and had a slightly bluish tint. Palpation determined the presence of fluctuation. A trocar was introduced, and six or eight ounces of frothy, straw-colored fluid was removed, which readily coagulated upon the application of heat. On the fourth day erysipelas set in around the wound, and the patient died on the seventh.

The autopsy revealed the fact that the hernial sac contained only the Fallopian tube, which was firmly adherent to the anterior part of the neck of the sac. The ovary was in its normal position.

The third case was published by Lentz and the two following by C. Brunner.

The cases of inguinal hernia of the Fallopian tube alone are only those recorded by Dolbeau and Lejaes.

Dolbeau operated upon a patient who presented all of the signs of an abscess in the inguinal canal. The patient sank rapidly and died soon after the operation.

The autopsy revealed a hernial sac containing a Fallopian tube distended with serous fluid. The ovary was in the abdomen at the entrance of the inguinal canal. The purulent focus was found in the sac.

Lejaes records a simultaneous inguinal hernia of the right Fallopian tube and the bladder in a state of strangulation.

*Recent Results of Vaginal Hysterectomy.*

L. G. RICHELOT (*L'Union médicale*, November 16, 1895) last year published the results of two hundred and seventy-four vaginal hysterectomies that he had performed. Of these, forty-four were for carcinoma, with three deaths; sixty-one were for suppurative diseases, with five deaths; one hundred and twenty-six were for non-suppurative diseases, with five deaths; forty-three were for fibromata, with one death. This gives a mortality in all cases of 5.1 per cent., or 4.78 per cent. if the malignant cases are excluded, eight per cent. for suppurative diseases of the pelvis, and 3.96 per cent. for non-suppurative affections. From January 1, 1894, to August 1, 1895, the author performed two hundred and two vaginal hysterectomies: fourteen for carcinoma, with three deaths; sixty-six for suppurative diseases, with three deaths; eighty-nine for non-suppurative conditions, with two deaths; thirty-three for fibromata, with two deaths.

The non-suppurative affections consisted of cases of parenchymatous salpingo-ovaritis, hydrosalpinx, complicated retroversions and extensive adhesions. There were two ovarian cysts, two parovarian cysts and two dermoid cysts. In this series the total mortality is 4.95 per cent., which is reduced to 3.72 per cent. if the malignant cases are excluded. It is 4.54 per cent. in pelvic suppurative diseases and 2.24 per cent. in non-suppurative affections.

One of the strongest points in favor of this method is the aseptic course of the convalescence. In studying the ultimate results of laparotomy, writers have shown that the operations for the more serious lesions, such as pelvic suppurations, have given a greater number of cures than the operations for the less severe lesions, such as neuralgias. The author practically agrees with this statement. In cases where he operated for slight lesions he has sometimes been compelled to remove the uterus in order to cure the patient. He records sixteen cases of vaginal hysterectomy following laparotomy for pelvic suppurative diseases, salpingitis and neuralgias. Of these, fifteen have been entirely relieved of symptoms. One, a melancholy, hysterical woman upon whom he unwillingly operated, has been seen three months after operation and reports that she has had no more pain or nervous attacks; but the future does not seem promising.

These facts demonstrate the possibility of failure to relieve symptoms by removal of the uterine appendages and the value of hysterectomy. This is well illustrated by the condition found in patient No. 287 who, besides having a pyosalpinx on the right side and a hydro-



salpinx on the left side, had a uterus infiltrated with pus. It is impossible to see how this woman could have been cured had not the uterus been removed as well as the appendages. The writer strongly advises against operating upon neurasthenic, really hysterical or insane persons. The author claims that in order to make a cure it is not always necessary to remove the ovaries and tubes, provided they contain no pus, so long as the uterus is taken out.

The discussion of hysterectomy for severe pelvic neuralgia is interesting. From this discussion it would seem that others besides the author had operated for no other symptom than pain, while still others had attributed all of these pelvic pains to hysteria. The author believes that these patients have utero-ovarian neuralgia, just as others have migraine or sciatica and that, unless they are neurasthenic, really hysterical or insane, they can be cured or greatly relieved by vaginal hysterectomy. The histories of two patients whose condition was considered serious enough to justify operation are related. The first patient was forty-five years of age and had suffered from pelvic pain for twenty years. She was extremely nervous but not hysterical. All remedies had been tried thus far without benefit. Vaginal examination showed a slight retroversion with adhesions. The patient was very weak and melancholy and neurasthenic—conditions very unfavorable for operation. She consulted an eminent authority on diseases of women, and he advised her strongly to have no operation done. The operation was performed, however. The uterus was movable, ovaries large and sclerocystic, tubes congested and indurated and bound down by adhesions. The patient's condition, both mental and physical, has improved rapidly, and she bids fair to recover entirely. The second case was that of a woman, twenty-seven years old, who had suffered extremely with uterine pains for two weeks, when she consulted the author. Attacks of pain of great severity would come so suddenly upon her that she would be unable to stand. She was a midwife but was compelled to stop work on account of the severe pain. Menstruation was extremely irregular and painful. Under an anæsthetic the vagina and uterus were dilated. This gave relief for a short time only, the pains becoming more severe. The patient requested the removal of the uterus, but the author refused to operate. The symptoms became more aggravated, and the patient continuing to demand an operation, the doctor consented and removed the uterus and appendages. The uterus was small and movable. The ovaries and tubes were healthy. The patient recovered entirely and resumed her occupation.

## OBSTETRICS.

## AMERICAN.

*Preventive Treatment of Puerperal Mastitis.*

CHARLES JEWETT, before the King's County Medical Society (*Brooklyn Medical Journal*, December, 1895), says that, according to Billroth and others, parenchymatous mastitis occurs in six per cent. of nursing women, more frequently in the first lactation. Usually it occurs in the second half of the puerperal month.

*Ætio.ogy.*—The essential factor of mastitis is sepsis. *Staphylococcus aureus* and *albus* are the most frequent pus germs met with, the streptococcus the next in order of frequency. The lochia is a prolific source of infection in addition to the usual sources.

*Predisposing Causes and Methods of Infection.*—Impaired general health and local mechanical injuries diminish the power of resistance. The influence of milk stasis is in dispute. Olshausen denies that it excites inflammation. Roser considers it a result, not a cause, the lactiferous ducts being occluded by the adjacent inflammatory swelling. Garrigues thinks milk stasis favors bacterial growth. The writer believes that stasis may damage the delicate endothelium of the lacteal ducts in the engorged areas and so open the door for infection. Nipple lesions of early lactation, fissures and abrasions expose the lymphatics directly to the entrance of septic bacteria. Though authorities differ as to whether the milk ducts or the lymphatics are the avenues of septic absorption, the fact remains that in a large proportion of cases the morbid agent enters by the lactiferous tubules. Since pathogenic germs may penetrate healthy mucous or serous surfaces, milk engorgement and traumatisms may open an easy path for bacteria to pass from the milk ducts into deeper structures. Staphylococci have been found in the milk of healthy breasts. Palleski found them in the milk of ten out of twenty-two cases of healthy nursing women. The fact that mastitis occurs so rarely, notwithstanding the omnipresence of bacteria, proves that a suitable soil is essential to bacterial growth. Another source of mammary infection rarely mentioned is the *blood channels*. Karlinski maintains that micro-organisms from the cavity of the uterus in the process of involution may be found in the blood. Escherich affirms that staphylococci found in the blood from genital infection are excreted in the milk as well as by

other channels. Direct injuries to the breasts may therefore invite localization of bacteria ; there is also reason to believe that general pathological conditions, even exposure to cold, may act in the same way.

*Prophylaxis.*—The indications of prophylaxis are to promote the resisting powers of the patient, both general and local, and to maintain the surgical cleanliness of the danger points. Prevention should antedate confinement, first, by properly fitting clothing ; the pressure of tight clothing over the nipples retards their development, especially in primiparæ, and increases the tendency to fissures ; second, cleanliness of the nipples for at least a month before delivery, secured by the daily use of a detergent, such as borax (a tablespoonful to the pint) or soap and water. Astringent lotions, such as brandy, tend to harden the cuticle and encourage fissures. The application of cocoa butter after the daily cleansing keeps the nipples soft. Third, gentle drawing out of the nipples each day with the fingers during the last two weeks of pregnancy is advisable when the nipples are small and retracted. When nursing begins, great care is needed to protect the delicate cuticle of the nipple, often abraded, from septic infection to which it is exposed from the hands of the attendants, liable to be contaminated by lochial discharges and from other sources. (Sloughing of the umbilical cord.—E.D.) Also thrush and ophthalmia in the infant. To this end bathing the nipples after each act of nursing with a saturated aqueous solution of boric acid is advisable, also the cleansing of the infant's mouth with a similar solution once or twice daily. The writer has used for the breasts mercuric-iodide solution (1 to 5,000 or 1 to 10,000), which should be washed off with boric-acid solution before nursing. Milk stasis is overcome by training the infant to nurse as soon as possible after delivery—within six to eight hours. The use of the breast pump is unsatisfactory, tending to bruise the breasts. Skillful massage is useful for overdistention. It is contraindicated in the presence of inflammation, and permissible only when not painful. The breasts should be oiled to prevent friction of the skin and to direct the force expended on the deeper tissues. Stroking should be in the direction of the ducts—viz., from the periphery to the nipple. In overdistention the compression bandage is valuable, applied firmly with evenly distributed pressure, secured by means of a thick layer of cotton wool ; an opening should be left for the nipple.

Oleate of atropine applied to the breasts diminishes the secretion, but must be used with care, as it may arrest the entire secretion. Saline catharsis and restriction of liquids are also indicated in hyper-

secretion. Tonics for the patient's general condition ought not to be overlooked.

Essential to the prevention of mastitis is the proper *treatment of nipple lesions*. Prolonged suckling macerates the nipple. A single nursing need occupy but ten or twenty minutes at the longest, and regularity should be enforced. Cocoa butter applied after each nursing to the nipples, which have first been cleansed, is very efficient.

Excoriations and fissures usually heal promptly under antiseptic treatment. Hirst recommends an ointment consisting of equal parts of bismuth subnitrate and castor oil. The writer prefers glycerite of starch. It should be frequently sterilized by heat. Another valuable remedy is hydrogen dioxide. Pain during lactation may be relieved by penciling the nipples ten minutes before nursing with a one- to five-per-cent. solution of cocaine. The solution should be frequently sterilized by heat. A one- or two-per-cent. solution of carbolic acid applied in the same way is also anæsthetic. The addition of one tenth its volume of glycerin prolongs the effect.

Deep and painful fissures should be treated by fused nitrate of silver. The edges of the fissure should be everted, and the entire raw surface touched lightly. Care is required to dry the surface first, that the dissolved silver may not spread to healthy surfaces. The pain may be mitigated by the prior and subsequent use of cocaine. A one- or two-per-cent. aqueous solution of nitrate of silver will cause no pain and often be efficient. The affected nipples should be rested, if possible, for twenty-four hours after the use of the silver stick.

In excoriation and fissures not too sensitive, and when there is little bleeding, the nipple shield can be used if the infant can be taught to accept it. If used, the shields must be sterilized by boiling for five minutes before nursing. When other measures fail, suspension of nursing for one or two days often succeeds. If both breasts are affected they may be rested alternately. The breast not in use should be supported by a compression bandage. It is rare that a case is so rebellious as to require total abandonment of nursing.

In *discussion*, Eliza M. Mosher thought that the dragging of a recently distended breast from its moorings by its increased weight caused milk stasis by elongation of the upper ducts and compression of the lower ones. She uses a light cheese-cloth bandage from the start to maintain the breasts in their proper position, and uses cocaine application early to prevent nerve strain from pain. She inquired if lancing an abscess in the breast of a newborn female infant would so injure its structure as to unfit it for lactation in after-life.

A. L. Dickinson emphasized the advantage to be obtained by prolonged rest of the breast in commencing mastitis, and thought that overdilatation could be avoided by the *early* application of the bandage so as to diminish milk secretion. The following four measures—stoppage of nursing, the application of the bandage, the arrest of fluid diet, and the use of saline cathartics—will give forty-eight hours' rest to a fissured nipple or a congested breast.

W. B. Chase spoke of certain cases of deep-seated submammary abscesses occurring two weeks after delivery in women suffering from malarial fever, the formation of these abscesses probably depending on the lowered vitality of the patient, the lactating breast having less power of resistance than the other tissues to bacterial infection.

Dr. Jewett, in closing the discussion, indorsed the view of Dr. Chase as to abscesses occurring in malarial fever. He did not see how the opening of an infantile mammary abscess could compromise the future function of the breast.

[Probably the loss of function, if any, would be the result of the destruction of gland tissue by the abscess before outlet, not the result of the incision.—EDITOR.]

*Rupture of the Fœtal Membranes Three Weeks before Delivery, with Persistence of Gestation to Full Term.*

A. D. STAPLEFORD (*Cincinnati Lancet-Clinic*, November, 1895) was called to attend a woman, aged twenty-eight, eight months advanced in her third pregnancy, who, having received a severe mental shock sufficient to cause syncope, noticed on her return to consciousness a watery discharge from the vagina, attended with a sense of constriction in the lower part of the abdomen but no pain. On examination, the cervix was found slightly dilated, but thick and rigid; liquor amnii was flowing freely from the uterus. Her condition twenty-four hours later was practically the same, except that the abdomen was reduced to nearly half its previous size. Fœtal prominences easily palpated, the amniotic flow was reduced in quantity, and no pains. Her condition remained unchanged for a week, a slight dribbling of water occurring each day, more freely on lying down. The pressure of the uterus upon the fœtal prominences caused so much distress that the woman was obliged to keep her bed. By the thirteenth day a thick, bloody and offensive discharge began; the cervix was dilated to the size of a silver dollar; head and hairy scalp plainly felt. It was considered best to wait for the onset of labor, unless hæmorrhage or septic symptoms occurred. On the twenty-first day



after the rupture of the membranes (full term by patient's calculations) labor pains began, and in four hours she was delivered, unaided, of a living and healthy female child weighing five pounds; subsequent history uneventful.

*Pregnant Uterus complicated with Fibroid; Induced Abortion and Self-delivery of Tumor through the Abdominal Wall.*

JACOB FRANK (*Chicago Medical Recorder*, November, 1895) reports a case of pregnancy at the fourth month in a woman aged thirty-four, complicated by a uterine fibroid as large as a cocoanut, which could be easily distinguished from the pregnant uterus. Labor was induced, after consultation, by means of the catheter. A dead fœtus was delivered, the placenta being retained; all efforts at its expulsion were futile. As hæmorrhage was slight, it was considered best not to interfere. Aseptic vaginal douches were given. On the fourth day after delivery the patient expelled the placenta much distorted. There was a very offensive discharge from the uterus. Temperature of patient 104° F., pulse 120. Chills, sweats, diarrhœa, and exhaustion followed. Intra-uterine douches were given frequently. This condition continued for about a week, when a fluctuating mass was felt in the right lumbar region. An incision was made into it and a quantity of very offensive pus escaped, leaving a gray, boggy mass beneath. A drainage-tube was inserted with a counter-opening near the ilium. Daily irrigation of the wound and intra-uterine douches were maintained, the patient's condition being very critical. A small opening was found in the uterine cavity which admitted the uterine cannula four inches deeper than elsewhere in the uterus. On the fifth day after the incision the intra-uterine douche water came out at the abdominal wound. Three weeks after the date of incision the boggy mass—a gangrenous fibroid which had been daily coming nearer to the surface—came away completely, leaving a granulating surface with an opening into the uterine cavity. The patient soon began to improve in health, the wound closed, and the patient regained her health and strength.

GREAT BRITAIN.

*Sudden Death from a Rare Cause.*

ROBERT MARKS, of Ottawa (*Canada Medical Record*, October, 1895), reports the case of a woman, aged twenty-eight, who died very suddenly during her eighth month of pregnancy. Autopsy revealed the

peritoneal cavity filled with fluid blood, together with a large clot. The uterus contained a fœtus at the eighth month of gestation. Two ulcerations larger than a ten-cent piece perforated the uterine wall near the fundus and extended into the placenta. Several smaller ulcerations were found, but not perforating the uterine wall. The uterus was soft and friable. All other organs healthy.

## FRANCE.

*Dystocia caused by Rigidity of the Cervix ; Retention in the Uterus for Four Days of a Decapitated Head.*

OSMONT and CHOTTARD (*Arch. de toc. et de gyn.*, No. 10, 1895) report the case of a woman, aged thirty-two, in her second labor. The first one occurred three years before without difficulty. On examination, Dr. Chottard found a shoulder presentation, acromion in right iliac fossa, anterior; by external manipulation he performed podalic version, and grasped a foot through a cervix dilated to the size of a silver dollar. Extraction was continued until the trunk was delivered, when he heard a slight crackling noise; on making a second effort at traction, the crackling occurred again, and to his surprise the trunk came away in his hands, leaving the head in the pelvis, separation taking place at the foramen magnum. Failing in his efforts to grasp the head, he sent for Dr. Osmont, who examined the patient and found the uterus firmly contracted about the inclosed head, situated high in the pelvis above the brim, the antero-posterior diameter of brim being eight and a half centimetres. The cervical canal admitted one finger. The internal surface was studded with slight elevations, about one centimetre in height, arising from the cervical wall. There was also an elastic band about two centimetres long. The fœtal head could be felt higher up in the uterus. Dr. Osmont considered the cervix in a state of spasmodic rigidity. As the patient had a "little fever," slight chills, and a fœtid discharge, he gave a hot carbolic douche, and endeavored by means of his hand, without an anæsthetic, to dilate the cervix and draw down the head, but, owing to the condition already described, it was found impossible to dilate the cervix. He next introduced a Champetier's balloon, and distended it with two hundred grammes of water. This was expelled two hours later, and again introduced and distended with three hundred grammes of water. This remained *in situ* for twelve hours with no pains. After another unsuccessful attempt to extract the head by the fingers without an anæsthetic, Dr. Chottard chloroformed the woman, and Dr. Osmont passed

his hand up to the uterus and seized the inferior maxillary bone with his index finger, which tore away from the skull. This last failure so discouraged Dr. Osmont that, in his own words, he "abandoned the game" and directed that antiseptic intra-uterine douches be given frequently under Dr. Chottard's direction. On the third day from the commencement of labor the woman expelled the foetal brain, and the next day the cranium and placenta, which was putrefactive. She rallied until the twelfth day from the beginning of labor, when she was seized with a chill and high fever, and died from hæmoptysis. Dr. Osmont, in reviewing the case, concludes that the rigidity of the cervix was pathological and not spasmodic, as he at first thought; he thought that an attack of metritis which the patient had after her first childbirth might have been a factor in causing cicatricial tissue in the cervix; to support this view the cranial bones were piled against each other so as to occupy four and a half centimetres in width by fourteen centimetres in length, which is about the same-sized space as that offered for extraction. Under the circumstances, he thought he was justified in leaving the case to Nature after his efforts at extraction had failed.

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#### ITEM OF INTEREST.

We have just received a reprint of a *Memorial*, which appeared in the November number of the *Edinburgh Medical Journal*, of Dr. Thomas Keith, of Edinburgh and lately of London, who died in the early part of last October. In the next or February number of this JOURNAL, we will publish a full obituary of Dr. Keith, with a reproduction from an excellent photograph.

We regret to acknowledge in advance our inability to do justice to a man who was as honest as he was brilliant, and whose career was that of one of the greatest abdominal surgeons of his century, but such meed of just praise as is ours to give we shall gladly express for one who worthily held not only our profound respect and admiration, in common with that of the whole medical world, but who had proved himself an excellent friend to us and whose personal acquaintance ship we had enjoyed.





**In Memoriam:**

THOMAS KEITH, M. D.,  
F. R. C. S. ED., LL. D., F. R. S. E.

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FEBRUARY, 1896.

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A REPORT OF TWO YEARS' WORK AT THE PRESTON  
RETREAT.\*

BY RICHARD C. NORRIS, A. M., M. D.,  
Physician in charge, Preston Retreat, Philadelphia, etc.

The report herewith presented includes five hundred consecutive deliveries at the Preston Retreat since January 1, 1894—a series of cases of which nineteen were delivered during the last month of my predecessor's incumbency.

There has been one death from chronic Bright's disease, which makes the mortality for this period one fifth of one per cent. The last death that occurred in the Retreat under Dr. Goodell's incumbency was a death from eclampsia, on March 21, 1885 (Case No. 2,166). Two deaths occurred during Dr. Price's term: one on the third day after labor from eclampsia and apoplexy in a chronic kidney case, March 31, 1889 (Case No. 2,745), and one from mania and convulsions on the fourth day after labor (September 15, 1893, Case No. 3,480). These, with the death during my term of service up to the present time, give a total of 1,865 consecutive cases with three deaths, or a mortality of one sixth of one per cent.

After briefly outlining the routine management of the patients awaiting delivery and of those delivered at the Retreat, I desire to present the histories of my cases that seem worth recording.

The urine of each patient admitted is regularly examined, and the

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\* Read before the Philadelphia Obstetrical Society, January 2, 1896. Carefully prepared statistical tables are appended.

examination is repeated once a week. The presentation and position of the fœtus are determined by abdominal palpation. The pelvis is carefully measured externally, and when the patient's history or her external measurements indicate pelvic deformity, careful internal measurements are taken. The facts learned from these examinations are recorded on the following chart :

No.	Age,	Date,	Last menses appd.,
Name,		Gravida,	Miscarriages,
Presentation and position,			
PELVIC MEASUREMENTS.		CHILD.	
Inter-spinous,		Length,	Weight,
Inter-cristal,		Malformations,	
External conjugate,		HEAD MEASUREMENTS.	
Internal conjugate diagonal,		Bitemp.,	
True conjugate, estimated,		Bipariet.,	
Right diagonal,		Occip. frontal,	
Left diagonal,		Occip. mental,	
Inter-trochanteric,		Trachelo-bregmatic,	
Circumference,		Circum. occip. front.,	

### Urinalysis.

DATE.									
Quantity.....									
Color.....									
Reaction.....									
Specific gravity..									
Albumin.....									
Urea.....									
Casts.....									

The total quantity of solids excreted by the kidneys is routinely estimated by Haines' modification of Haeser's method—viz. : Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours, and the product by one and one tenth. A woman weighing one hundred and fifty pounds should show normally a total of urinary solids of 1,150 grains in twenty-four hours. When this examination reveals a marked diminution of the urinary solids, then the urine is examined chemically to accurately determine the quantity of urea. Very little reliance is placed upon the presence or absence of albumin unless it is present in large quantity. Albumin was found in twenty-nine cases, and in nine cases there was kidney insufficiency which required active treatment. Five cases of pelvic deformity were noted that required operative treatment.

The technique followed at the Retreat to prevent puerperal sepsis does not materially differ from that followed in other similar institutions, and is briefly as follows: The women awaiting delivery never come in contact with the lying-in patients. Two baths a week, daily purgation, and a wholesome diet are the rules of the house. At the approach of labor the patient is given a full bath, with a generous use of soap and brush, and she receives a 1-to-2,000 sublimated vaginal douche, and thorough douching of the vulva, lower abdomen, and the inner surface of the thighs.

Vaginal examinations are as few as the case will permit, but manipulation to favor the mechanism of labor—for example, assistance to favor rotation in posterior positions or to correct faulty position—is not neglected. In ordinary cases one examination suffices. Diagnosis by abdominal palpation is highly valued and constantly practiced. Personal disinfection is rigid. Nail-cleaning: nailbrush and abundance of soap and hot water repeatedly changed, a 1-to-1,000 bichloride solution and in addition, for operative cases, alcohol and a sterilized nailbrush are employed. A lubricant is not used. A large freshly laundered gown covers the attendant's clothing. Prompt delivery of the placenta after a single dose of ergot; a post-partum sublimate douche (1 to 2,000) and antiseptic occlusive pads are employed in every case. Vaginal and perineal lacerations are always immediately repaired with silkworm-gut sutures and needles and needle-holder sterilized by boiling. Throughout the first ten days of the puerperium the antiseptic occlusive dressings are worn and are very frequently and extravagantly changed, the external genitalia being carefully cleansed with the bichloride solution when each pad is renewed. Vaginal douches in the puerperium are given on alternate days only when lacerations have required *extensive* repair. A two-per-cent. solution of creolin is used for intra-uterine or vaginal douches in the very rare cases that require douches in the puerperium. The nurses have cleanliness and antisepsis forced upon them at every point. The building is well ventilated and the wards are used in rotation. Each lying-in ward is thoroughly cleansed after ten days' or two weeks' occupancy, and for the same period the ward is vacated, the windows being widely opened in winter and in summer throughout this period. There are two delivery rooms which also are used in rotation. The hospital furniture in the delivery rooms and in the wards is made of iron and of glass and readily can be kept clean. A glass percolator and a glass nozzle are used for the douche. All instruments are sterilized by boiling in water.

## PREGNANCY.

There have been comparatively few complications of pregnancy in the women awaiting delivery at the Retreat. Among these complications, the following are worth recording: One case of *uncontrollable hiccough* whose history is as follows: Mrs. A. (Case No. 3,626), aged nineteen, primigravida; has had numerous attacks of uncontrollable hiccough since the second month of her pregnancy; the attacks are always accompanied by vomiting and usually last about four hours, but have sometimes persisted for six days. During the attacks which I had the opportunity of studying, the diaphragm rhythmically contracted with a to-and-fro motion that could be felt by the hand depressed under the margin of the ribs; the pulse and temperature were not influenced. Each of the attacks occurring in the hospital followed a hearty supper, and the patient gave the history of their usual occurrence after overindulgence in food. The patient stated that innumerable hypodermics of morphine had been given without any beneficial effect, and that on several occasions her physician was compelled to administer chloroform. I was able to relax the spasm for short periods by the administration of pearls of nitrite of amyl containing three drops of this drug. The momentary unconsciousness thereby produced was soon followed by recurrence of the hiccough. Three or four doses were given at intervals, with only transient relief; large doses of belladonna and of bromides, together with restricted diet, relieved the patient very much, lengthened the intervals between the attacks to two weeks, and diminished markedly the violence of the spasms. The patient's urine was normal in every respect. After delivery the hiccough did not return.

One case of *chorea* has been observed: Mrs. P. (Case No. 3,975), aged twenty-six, II-para.

When fourteen years of age she had chorea, which disappeared in about six months. During her first pregnancy there were no choreic movements. She was delivered prematurely at seven months, July, 1894. The following November she became pregnant for the second time. A few weeks before the last pregnancy she had an attack of *la grippe*, which very much prostrated her. Shortly after becoming pregnant her husband noticed the choreic movements, which have persisted throughout this pregnancy without very marked aggravation. During labor the movements were very active until full dilatation of the os occurred, after which time they were less violent. The second day after delivery, the patient in the adjacent bed being attacked with

eclampsia, the choreic movements were very much increased. Fowler's solution was administered in ascending doses, which drug, and a quiet puerperium, brought about very great improvement.

There has been observed one case of very troublesome *asthma gravidarum*. In all of her three pregnancies the patient suffered from the same affection, and she was entirely free from such attacks when not pregnant. Constipation and a moderate degree of renal insufficiency explained her condition as one of mild toxæmia.

One case of *aphasia* was observed: Mrs. C. (Case No. 3,687), aged twenty-five, III-para; twin pregnancy. Since the occurrence of quickening, the patient lost her power of speech at intervals of a few days, but at no time did she lose consciousness. An attack always was preceded by pin-and-needle sensations, usually of the entire body, sometimes of the right side, and suddenly disappeared, leaving behind a severe headache. Vision was never impaired. The patient had been very constipated; similar attacks occurred in her two prior pregnancies, but they were much worse during the present twin pregnancy. In the intervals between pregnancies she was entirely free from the attacks. A careful study of this case convinced me that the origin of the loss of speech was hysteria; her difficulty was more an inability to produce a sound than a failure to use words properly—in other words, the case was one of aphonia.

Two cases of *aggravated gingivitis* and pytalism were observed. Atropine pushed to the physiological limit gave some relief to this most distressing affection. A four-grain solution of silver nitrate penciled over the gums also seemed beneficial.

*Convulsions* occurred among the pregnant women six times. In two cases the convulsions were due to hysteria, in one to epilepsy, and in three to eclampsia. One case of *dysentery* in a woman pregnant at term was brought to the Retreat in an ambulance; she was isolated and passed through her confinement and puerperium without difficulty. One case of double pneumonia was given shelter overnight, and died within twelve hours. The latter patient was not positively known to be pregnant.

*Eclampsia*.—There have been three cases of eclampsia in the group of cases reported this evening. All the patients recovered:

CASE I (No. 3,613).—Mrs. McK., aged twenty-five, I-gravida. This woman was a waiting patient at the Retreat when I assumed charge of the institution. Her urine had not been examined. The eclamptic seizure occurred a few days after I assumed charge of the Retreat, and before I instituted routine examinations of the urine of all the patients

awaiting delivery. At one o'clock in the morning several convulsions occurred while the patient was in bed ; she was carried unconscious to the delivery room ; her vulva was œdematous, and there was considerable swelling of the legs. She was catheterized, and the urine became solid after boiling it with a few drops of acid. The patient was delivered two hours after reaching the delivery room. During this time seven convulsions occurred. The treatment was as follows: Chloroform at the approach of a convulsion ; chloral, one drachm, by enema ; croton oil, gtt. v ; hot wet pack, and as soon as the os was sufficiently dilated delivery was effected with forceps under chloroform anæsthesia. After delivery the patient remained comatose for twelve hours. The lungs were œdematous ; the body was swollen ; the eyelids were so puffy that the eyes could not be opened after the coma disappeared ; the skin was very dry. Sixteen dry cups were applied to the chest anteriorly and posteriorly. Two drachms of a saturated solution of Rochelle salts were given every fifteen minutes until free catharsis followed. Thirty-two large watery stools occurred in twelve hours. After the patient was delivered she was kept continuously in a hot alcohol-vapor bath. The temperature at no time during the attacks was above  $103^{\circ}$  F. The irregularity, extreme rapidity, and weakness of the pulse seemed to contraindicate the employment of venesection or of *veratrum viride*. The child was still-born. Throughout the first week of convalescence the patient was given, morning and evening, citrate of caffeine in doses of three grains, which, apart from the physiological polyuria of the puerperium, had a marked influence in increasing the flow of urine. Basham's mixture was thereafter substituted. The diet was confined to milk. The urine steadily increased in amount ; the albumin decreased, and the total quantity of solids excreted increased daily. When the patient left the hospital four weeks after delivery, only a trace of albumin was present, and the total amount of solids excreted in the urine in twenty-four hours was normal.

CASE II (No. 3,659).—Mrs. K., aged nineteen, I-gravida. Two days after admission the urine was examined and was found to be normal, with the exception of a slight diminution in the amount of solids excreted. There was no evidence of toxæmia, and there was no œdema. Her labor began June 13, 1894, six days after admission. While she was asleep several convulsions occurred at intervals, the violence of which threw her out of bed and broke two of her front teeth. The urine drawn by catheter now showed a trace of albumin, and numerous narrow hyaline casts. The notes of the case for the



first twelve hours, including the treatment, are as follows : 10.30 A. M., convulsion, chloroform inhalation ; 11 A. M., two convulsions at short intervals, chloral one drachm (enema), croton oil gtt. iv, and veratrum viride gtt. x (hypodermatically) ; 11.15 A. M., forceps ; 12 M., delivery. Child was asphyxiated but revived ; mother's pulse, 96 ; 2.30 P. M., pulse 60 ; saturated Epsom-salts solution, two drachms, every fifteen minutes ; hot-air bath during alternate hours ; 6 P. M., convulsion followed by free evacuation of the bowels and by a uterine hæmorrhage, with the loss of about one pint of blood ; pulse 122, temperature 101° F. ; chloral, one drachm (enema) ; 8.30 P. M., pulse 84 ; 9 P. M., pulse 108, strong and bounding ; fluid extract of veratrum viride gtt. v (hypodermatically) ; elaterium one eighth grain ; 10 P. M., pulse 65 ; elaterium one eighth grain ; 10.30 P. M., free catharsis occurred ; patient's mental condition improved. In thirty hours thirty-four drops of the fluid extract of veratrum viride were given in five- or eight-drop doses, when the frequency and the volume of the pulse, the rise of temperature and the excessive restlessness of the patient threatened the occurrence of a convulsion. Two drachms of chloral by the bowel and fifteen grains by the mouth were given within sixteen hours after delivery. Twelve ounces of Epsom salts were administered within thirteen hours in saturated solution in doses of two drachms, and during this time two doses of elaterium, each one eighth of a grain, were administered ; free catharsis began at 7.30 P. M., seven and a half hours after delivery. The patient was kept in a continuous hot-vapor bath, the vapor being secured from alcohol poured upon heated blocks of soapstone placed under the bedclothes, and a current of hot air was supplied by means of an alcohol lamp and an elbow of stovepipe. This means of securing diaphoresis was kept up continuously for three days and thereafter, for one hour, three times daily for four days. Free action of the skin was thus secured. The patient was given all the water she could drink. The quantity of urine secreted by this patient after her delivery is of interest and shows the great value of caffeine as a diuretic. During the first ten hours after delivery the bladder contained no urine. Throughout the next twenty-four hours, June 15th, the quantity was  $\bar{3}$  xij ; June 16th,  $\bar{3}$  xxij ; June 17th,  $\bar{3}$  xxiv ; caffeine (grs. iij) was now given every four hours ; June 18th,  $\bar{3}$  lxij ; June 19th, 4.25 pints ; June 20th, 4 pints ; caffeine was now replaced by Basham's mixture, which the patient continued to take throughout her convalescence.

The value of free catharsis and of diaphoresis was unmistakable in this case ; also the use of veratrum viride to diminish the force and

frequency of the pulse. This drug was given whenever the pulse rose above 100 and when the increasing volume of the pulse indicated the probability of a recurrence of a convulsion. The hæmorrhage from relaxation of the uterus also contributed to depress the force of the heart's action. The patient's recovery was uninterrupted.

CASE III (No. 3,962).—Mrs. J., aged eighteen, I-gravida. In the fifth month of her pregnancy she was attacked with severe headache and partially lost her vision. At this time the symptoms of threatened miscarriage disappeared under rest in bed. During the past three months œdema of the ankles has been present and the patient has not been able to wear her shoes with comfort. Throughout the same period headache was almost continuous and at times her vision was blurred. July 10th, the patient was admitted to the Retreat. The next day a morning specimen of the urine was examined with the following results: No albumin; specific gravity 1017; acid reaction; tube casts were not found. She was freely purged with Rochelle salts, after which the head symptoms were less severe. July 20th, urine examination showed no albumin; faintly acid; specific gravity 1024. July 22d, quantity of urine in twenty-four hours was forty-eight ounces; specific gravity 1017; no albumin; acid reaction. The quantity of urea was estimated and was found only slightly below normal. July 30th, specific gravity 1015, faintly acid. Labor began August 2d, 11 P. M., and delivery occurred August 3d, 7.30 A. M. The presentation was left occipito-anterior and the birth natural. At 3 P. M., August 3d, the woman suddenly lost her vision, vomited, had intense headache and was very sleepy. Her tongue was heavily coated. A powder of potassium bromide (grs. xxx) and caffeine (grs. iij) was administered. At 7 P. M. vision had returned in the left eye, but the right eye had not recovered. The patient was very drowsy and slept heavily. Pulse 100. At 11.30 P. M. a convulsion occurred which lasted about five minutes. A second convulsion occurred an hour later. I discovered that the nurse had neglected to catheterize the patient and that the bladder was distended, pushing the uterus far upward and to the right. Twenty-three ounces of urine were drawn with a catheter. The pulse during the second convulsion was 130. Ten drops of fluid extract of veratrum viride were administered hypodermatically. A drachm of chloral was given by enema, most of which was not retained. When the coma following the first convulsion had largely disappeared, four drops of croton oil and, later, twenty grains of chloral were administered by the mouth. The bowels moved at 4 A. M., and shortly thereafter the patient slowly regained

consciousness. By means of an alcohol lamp and a shoulder of stovepipe, profuse perspiration was secured. The following day further action of the bowels was maintained by the administration of Rochelle salts, one drachm every hour, twenty doses being taken, which secured thirteen bowel movements. August 14th, the total quantity of urine in twenty-four hours was fifty-eight ounces, specific gravity 1020; no albumin; quantity of total solids excreted was above the normal. The patient had no recurrence of headache or disturbed vision, and four weeks after labor she was discharged perfectly well. The urine at this time was normal.

Six other women have been admitted to the Retreat in whom there were marked evidences of kidney insufficiency. Labor was induced in three of these cases, under which heading their histories will appear. The histories of the remaining three are as follows:

Mrs. C. (No. 3,960), aged eighteen, I-gravida. During the last three months of pregnancy œdema of the ankles, the legs, the vulva, and the face was very marked, during which time the patient complained of intense headache. There had been no dimness of vision. The bowels, under the action of purgatives, had been moving. Upon admission to the hospital, a few days before term, the examination of the urine showed albumin three fourths by bulk and numerous hyaline casts. The total quantity of urine in twenty-four hours was thirty-one ounces and the specific gravity 1017. In the absence of systemic symptoms and with a restricted diet and the ingestion of large amounts of water I decided to permit the patient's pregnancy to continue for a time with careful supervision of her excretions. Three days later she fell into labor, during which there were marked nervousness and jactitation. As soon as the os was sufficiently dilated Tarnier's axis-traction forceps was applied and a living female infant was delivered; weight, nine pounds. Within a few days after delivery, under the influence of caffeine, the kidneys secreted from forty to seventy ounces in twenty-four hours, the quantity of albumin steadily diminished, and the total quantity of solids excreted increased. Convalescence was normal.

Mrs. C. (Case No. 3,955), aged thirty-five, I-gravida. Some swelling of the ankles had been noticed in the early months of pregnancy, but during the last month the œdema was very marked. During the last week œdema of the vulva was present. There is also considerable puffiness of the face and eyelids. The patient recently complained of gastric distress on three occasions. During the night had nausea and vomiting. Has not had headache and vision has al-

ways been normal. During the past month has had very frequent micturition. Admitted to the hospital Sunday, July 7th. Calculating from the menstrual history, confinement is due July 20th. Examination of the urine, July 8th, shows a very large proportion of albumin, one half by bulk and numerous casts. The total amount of solids excreted was two thirds the normal amount. The patient was kept in bed, and the activity of the skin, of the kidneys, and of the bowel was promoted by means of sweating and the administration of milk, caffeine, and Epsom salts. Labor began July 11th, 3 A. M., and was completed spontaneously in twelve hours. During the second stage there was much nervousness; the pupils were unequal; there was incessant rolling of the head from side to side.

Fibrillary contraction in the muscles of the right side of the face and irregular twitchings of the right arm were noted; the right pupil was slightly dilated; the pulse 120. A drachm of chloral was administered by the bowel, and while the forceps was being prepared for an instrumental delivery the infant was spontaneously born, weighing four pounds twelve ounces. The nervousness and muscular twitching persisted for some hours after delivery. During the night, by the application of heat, the patient perspired moderately and four ounces of Rochelle salts were administered, followed by one bowel movement. During the first twenty-four hours subsequent to delivery ten ounces of urine were passed. Convalescence was rapid and complete, the functional activity of the kidneys speedily improving after the administration of diuretics and a milk diet.

Mrs. G. (Case No. 3,702), aged nineteen, I-gravida; admitted to the Retreat three weeks before term. She was very anæmic; suffered from headache and there was œdema of the lower extremities. An examination of the urine showed the total amount in twenty-four hours to be twenty-six ounces; specific gravity 1016; an abundant amount of albumin and diminution in the quantity of urea. The patient was very nervous and apprehensive of her coming confinement. Rest in bed; activity of the skin, obtained by means of hot-air baths; a milk diet; administration of caffeine and, later, of Basham's mixture carried her to term with improvement in her condition. After her labor the quality and quantity of her urine slowly improved. Meanwhile she was exceedingly nervous and became melancholic. She suffered from galactorrhœa, which seemed to be an expression of her nerve prostration. It was necessary to discontinue lactation. She finally recovered entirely from her nervousness and left the hospital with her blood and kidney conditions much improved.

*Complications of Pregnancy.*

	No. of Cases.
Albuminuria.....	29
Aphasia.....	1
Asthma gravidarum.....	1
Chorea.....	1
Chronic Bright's disease.....	2
Dysentery.....	1
Eclampsia (threatened).....	3
Epilepsy.....	1
Gingivitis.....	2
Hysterical convulsions.....	2
Influenza.....	3
Kidney insufficiency (grave).....	9
Pleurisy.....	1
Syphilis.....	10
Uncontrollable hiccough.....	1

LABOR.

PRESENTATION AND POSITION.	L. O. A.	R. O. P.	R. O. A.	L. O. P.	Breech.	Trans- verse.	Com- pound.	Total.	Infants.
Primigravidæ	121	25	7	1	4	..	1	157	Male, 264
Multiparæ...	256	70	6	2	11	2	..	343	Female, 242
Total...	377	95	13	3	15	2	1	500	Total, 506

Six twin pregnancies—two primigravidæ, four multiparæ. The presentation in four was vertex, in two vertex-breech.

*Complications of Labor.*—There has been one case of *placenta præ-via*: Mrs. McG. (Case No. 3,669), XI-gravida, aged forty-three; last menses, September 7, 1894. On December 10th, June 6th, March 8th, and April 14th had uterine hæmorrhages, and on the last date the flow was quite free and lasted six days. June 7th, membranes ruptured. On June 12th, while working at the table, she was suddenly attacked with alarming bleeding which was not accompanied by pain; she was hurriedly taken to the delivery room, and upon examination the os was found undilated and only partially dilatable. A margin of the placenta extended to the external os on the right side; presentation and position left occipito-anterior; head not engaged. The largest sized Barnes bag was introduced but would not remain in place; the cervix was therefore dilated manually after the method



of Dr. P. H. Harris, and the head was brought into the pelvic inlet by axis-traction forceps which was then removed.

The hæmorrhage ceased and a living child with double harelip and cleft palate was born spontaneously, six hours later. Puerperal convalescence was without incident.

There has been one case (No. 3,892) of alarming *epistaxis* during labor. Careful examination of the patient could discover no disease of the kidneys or blood-vessels. The patient's face and eyes were markedly suffused and puffy during her labor. Four hours after the beginning of labor, profuse bleeding occurred from the left nasal passage. Applications of ice checked the hæmorrhage temporarily. One hour later a second outpouring of blood occurred, perceptibly weakening the pulse and requiring a plug of gauze smeared with cosmoline and dusted with tannic acid. The plug was removed immediately after the delivery of the placenta and there was no recurrence of bleeding.

There was one case of *premature detachment of a normally situated placenta* that was accompanied by a hæmorrhage not dangerous to the mother but fatal to the child :

Mrs. C. (Case No. 4,020), I-gravida, left occipito-posterior position.—There was delay in anterior rotation of the occiput due to obstruction by a very prominent ischiatic spine. During the second stage of labor a free discharge of bloody liquor amnii and blood occurred that decidedly weakened the patient's pulse, and caused a cessation of the foetal heart. Immediate extraction with the forceps delivered a child in the second degree of asphyxia which proved fatal. A retroplacental clot the size of a cocoanut was found, and the placenta showed areas of fatty and fibroid degeneration. Autopsy upon the infant was made by Dr. C. W. Burr. All the organs were normal. The infant's death was due to intra-uterine asphyxia.

*Uterine Fibroids*.—Labor has been complicated three times by uterine fibroids.

CASE I (No. 3,620).—Mrs. T., II-gravida. A submucous fibroid about the size of a newborn infant's head caused free bleeding immediately after labor by interfering with uterine retraction. Hæmorrhage was controlled by a hot intra-uterine douche. Patient's puerperal convalescence was normal, and on the twelfth day the tumor had been reduced to a very small size.

CASE II (No. 3,619).—Mrs. C., I-gravida. Several subperitoneal tumors, each about the size of an orange, were felt on the anterior uterine wall. When labor began two nodules were distinctly felt be-



hind the bladder, but at the time of delivery the tumors had been drawn above the bladder by the longitudinal fibers of the uterus. Convalescence was afebrile.

CASE III (No. 3,781).—Mrs. K., aged thirty-seven, I-gravida. Six subperitoneal fibroids were detected by abdominal palpation. Vaginal examination discovered a fibroid low down on the left side fixed below the pelvic brim and offering serious obstruction to the birth of the child. Preparations were made for a Cæsarean section, should the uterus fail to lift the tumor out of the pelvis, during the progress of labor. After two hours of active uterine contractions the tumor had been lifted sufficiently high to permit spontaneous birth. During convalescence I watched with considerable interest the progressive diminution in the size of the tumors, and when the patient left the hospital they had been reduced from the size of an infant's head to that of an English walnut. While it is true that uterine fibroids complicating labor should be closely watched and serious obstruction should be anticipated, I believe cases of uterine fibroids so situated as to be drawn up by the longitudinal fibers of the lower uterine segment should be given a fair chance before resorting to the Cæsarean operation.

A very interesting complication occurred in a woman on whom a *ventro-fixation* (Case No. 3,909) had been done two years prior to her delivery. This case has been reported in the *American Journal of Obstetrics*, December, 1895. The anterior uterine wall throughout its entire extent was apparently fixed to the abdominal wall and the physiological hypertrophy of the uterine muscle had occurred, but in such a manner as to double up the muscle fibers into a mass which obstructed the pelvic inlet and which was observed, alternately, to relax and contract with each recurring pain. A finger placed above the symphysis was at least five inches distant from a finger touching the interior surface of this hypertrophied mass of muscle. Almost the entire uterine sac was formed by the posterior uterine wall, which extended from the upper margin of the hypertrophied muscle in front to the sacral promontory. The uterine sac was therefore dangerously thinned; the contraction ring was situated low anteriorly at the junction of the cervix and the aforementioned hypertrophied and imprisoned muscle; posteriorly, the contraction ring was situated at least three inches above the sacral promontory. The child's position was oblique with the head lying under the spleen in the left upper quadrant of the uterus. The face was anterior, and the feet rested in the depression above and behind the hypertrophied anterior uterine

wall. The danger of rupturing the uterus by version was promptly recognized, and, after failing in efforts to dislodge and bring down the feet, cephalic version was performed; the head was made to rest posteriorly upon the promontory and anteriorly upon the obstructing mass of muscle. Tarnier's forceps was applied to the head above the pelvic brim; the cord had prolapsed and could not be replaced; rapid extraction therefore was employed, and the head brought past the obstruction into the pelvis. The child was now in a posterior position, with the occiput in the hollow of the sacrum. Rapid extraction, in order to save the infant, was employed, but without success. The cord had been compressed between the child's head and the mass of muscular tissue. The infant could not be resuscitated.

*Pelvic Deformity.*—CASE I (No. 3,601).—Mrs. D., aged thirty, German, IV-gravida. Her first child was born dead at full term; attended by a midwife. Her second child was delivered alive with forceps; this child lived five years and carried a deep depression in its forehead from the pressure of the forceps. The third child was prematurely delivered with forceps. The patient was admitted to the Retreat in labor March 23, 1894. Her pelvic measurements taken during labor were as follows: Interspinous, 25 centimetres; intercrystal, 26.5 centimetres; external conjugate, 17.25 centimetres; internal conjugate diagonal, 9.75 centimetres; true conjugate (estimated), 8.5 centimetres; right diagonal, 20 centimetres; left diagonal, 20 centimetres; intertrochanteric, 31 centimetres; circumference, 86 centimetres; patient's height, four feet seven inches.

Presentation and position: Vertex, occiput to the right. After several hours of ineffectual pains the membranes were not ruptured and the os was only partially dilated. Podalic version. The posterior foot was the first one grasped, the anterior foot not being readily reached. An attempt was made during extraction to rotate the child's body so as to bring anterior the occiput of the after-coming head.

This manœuvre caused a nuchal displacement of the right arm, which was liberated with some difficulty. After its liberation the head required powerful dragging and suprapubic pressure to accomplish delivery. The infant was deeply asphyxiated, but was finally revived after twenty-five minutes of hard work; it lived three days and then died in convulsions. Autopsy showed a widespread intracranial hæmorrhage. The child at birth weighed nine pounds and a half, and had the following measurements: Bitemporal, 9 centimetres; biparietal, 9.75 centimetres; occipito-mental, 14 centimetres; trachelobregmatic, 10.25 centimetres; occipito-frontal circumference, 37 cen-

timetres. It was a source of regret that symphyseotomy was not utilized for this case, since that operation might have saved the child.

CASE II (No. 4,005).—In August, 1895, the same patient was brought to the Retreat in labor, one week before term. The pelvic measurements were again carefully gone over and verified. Suprapubic palpation of the foetal head and digital examination under ether to determine the relative size of the head and the pelvis indicated that this time the child was of smaller size than at her labor the preceding year. Version was again performed, this time with the birth of a living child, whose weight was seven pounds. The biparietal diameter was eight centimetres. This case emphasizes the necessity of studying the relative size of the head to the pelvis before determining upon the operative procedure to be employed in a given case of pelvic deformity.

CASE III (No. 3,719).—Mrs. McL., aged thirty, III-gravida. After three days of active labor her first child was born dead, with a spoon-shaped depression of the parietal bone. The physician who attended her at that time told her that she was too small to bear a living child and proposed craniotomy, which was refused on account of the patient's religion. In her second pregnancy she miscarried at two months; was sick in bed seven weeks, and was subsequently treated at the dispensary of the Woman's Hospital. She came to the Retreat in her third pregnancy one week before term. Her measurements were as follows: Interspinous, 24 centimetres; intercristal, 26 centimetres; external conjugate, 17.25 centimetres; internal conjugate, diagonal, 9.5 centimetres; true conjugate, 8 to 8.5 centimetres; right diagonal, 19.5 centimetres; left diagonal, 19.5 centimetres; circumference, 81 centimetres; intertrochanteric, 29 centimetres; patient's height, four feet five inches; weight, one hundred and thirteen pounds.

Presentation and position: Vertex, occiput to the left; sagittal suture in the transverse diameter of the pelvic inlet. Diastasis of recti muscles and pendulous abdomen. Labor began August 7th, one week after admission. Suprapubic pressure and digital examination under ether showed plainly that the head protruded well beyond the symphysis pubis and was not likely to enter the pelvis without undue compression.

The child was apparently of average or large size. After six hours of active labor pains the os was partially dilatable, and the head freely movable above the pelvic brim. At 2 A. M. symphyseotomy was performed. A median suprapubic incision was made and the pubic joint severed with a Galbiatti knife; free bleeding followed the in-

cision through the joint ; the hæmorrhage was controlled by iodoform-gauze packing. The symphysis immediately after its section separated about half an inch. When axis-traction forceps was applied and moderate traction made, the separation increased to an inch and a half as the head suddenly slipped through the pelvic inlet ; the child was then extracted without difficulty, and was moderately asphyxiated, but was soon resuscitated. The gauze packing and a few blood clots were removed from the abdominal wound, and to secure drainage three strands of silkworm gut were passed to the bottom of the wound, avoiding the pubic joint. The silkworm gut was removed at the end of forty-eight hours ; it afforded no drainage, and I shall not employ it again for this purpose, since it seems to be unnecessary and may prove a source of danger. The measurements of the child were as follows : Bitemporal, 8 centimetres ; biparietal, 9 centimetres ; occipito-frontal, 11.5 centimetres ; occipito-mental, 13 centimetres ; trachelo-bregmatic, 8 centimetres ; circumference, occipito-frontal, 34 centimetres ; length, 48 centimetres ; weight, seven pounds four ounces.

During the patient's convalescence the urine was blood-tinged during two days, after which time it was normal. The patient's convalescence was afebrile. She was kept in bed five weeks. I examined this patient two weeks ago and find there is no difficulty in locomotion, and there is no appreciable movement of the joint surfaces when she walks.

CASE IV (No. 3,641).—Mrs. U., aged twenty-five, II-gravida. Her first delivery occurred at the Woman's Hospital after a difficult forceps operation. The patient stated that the baby's head received a serious injury, and the child died six weeks after birth. The patient came to the Retreat ten days past term. Her measurements were as follows : Interspinous, 25 centimetres ; intercrystal, 27 centimetres ; external conjugate, 17.5 centimetres ; internal diagonal conjugate, 9.75 centimetres ; true conjugate, 8.5 centimetres ; right diagonal, 21 centimetres ; left diagonal, 21 centimetres ; intertrochanteric, 28 centimetres ; circumference, 75 centimetres ; weight, 105 pounds. Presentation was vertex, occiput to the left ; sagittal suture in the transverse diameter at the inlet. The urine showed a trace of albumin ; specific gravity, 1027 ; the quantity normal. The head had not entered the pelvic inlet. The apparently small size of the child's head, determined by suprapubic pressure and digital examination under ether, indicated the probability that the head would enter the pelvic inlet with cautious use of axis-traction forceps at the

pelvic brim. It was therefore determined that the treatment should be immediate induction of labor followed by application and cautious traction with forceps. If engagement of the head could not be secured without undue force, symphseotomy was to be performed. Labor was induced. A bougie was introduced April 25th, and provoked a few slight pains; second bougie, April 26th. Softening of cervix and a few slight pains were the only results of the introduction of the bougies. On April 27th the largest size Barnes bag was introduced, and six hours later the os was well dilated. The patient was etherized; the membranes were ruptured and Hodge forceps was applied at the brim, the right blade being applied first and above and behind the symphysis; the left blade followed and was placed above and in front of the sacral promontory. After careful but vigorous traction the head was drawn into the pelvic inlet and the forceps was removed. Spontaneous birth of a living child occurred one hour later. The measurements of the child were as follows: Bitemporal, 7.5 centimetres; biparietal, 8.5 centimetres; occipito-frontal, 9.5 centimetres; occipito-mental, 12 centimetres; trachelo-bregmatic, 8 centimetres; occipito-frontal circumference, 32 centimetres; length, 43 centimetres; weight, five pounds twelve ounces. Mother's convalescence afebrile.

CASE V (No. 3,851).—Mrs. N., II-gravida. Patient had been delivered with difficulty the preceding year at the Retreat by means of high forceps. The pelvic measurements were as follows: Interspinous, 23 centimetres; intercrystal, 25 centimetres; external conjugate, 16.5 centimetres; internal conjugate diagonal, 9.75 centimetres; true conjugate, 8.5 centimetres; right diagonal, 19 centimetres; left diagonal, 19 centimetres; intertrochanteric, 27 centimetres; circumference, 80 centimetres.

Labor induced two weeks before term: First bougie, at 7 P. M., February 3d; second bougie, at 9.30 A. M., February 4th. Pains began at 2 P. M. Membranes ruptured spontaneously at 3.45 P. M. Delivered of a living child spontaneously at 5 P. M. The measurements of the child were as follows: Bitemporal, 8 centimetres; biparietal, 9 centimetres; occipito-frontal, 12 centimetres; occipito-mental, 13 centimetres; trachelo-bregmatic, 8 centimetres; circumference, 34 centimetres; length, 48 centimetres; weight, seven pounds two ounces. An obliquely contracted pelvis, due to coxalgia, has been observed in three patients. The head in each case descended in the larger oblique diameter and delivery was spontaneous.

*Induced Labor.*—Labor has been induced five times—twice for



pelvic deformity in the cases just described, three times for threatened eclampsia. The histories of the latter cases are as follows :

CASE I (No. 3,621).—Mrs. H., aged twenty-nine years, I-gravida, was sent to the Retreat three days before term. Upon examination, the face, lower abdomen, and legs were markedly œdematous. She complained of nausea, headache, and dimness of vision. The urine was diminished in quantity and contained a large amount of albumin and narrow hyaline casts; specific gravity, 1015. The quantity in twenty-four hours was seventeen ounces, and the total solids was half the normal amount. The day after admission on March 18th, at 3 P. M., a flexible bougie was placed in the uterus, and at 10.30 P. M. a larger size. March 19th at 10 P. M. the largest size Barnes bag was introduced. At midnight the os was dilatable. The membranes were ruptured, after which a living child was delivered with forceps. March 22d the quantity of urine in twenty-four hours was ten ounces, and after the administration of caffeine the quantity of urine slowly increased. Throughout the first two weeks of convalescence the patient was freely purged, and her skin was kept active by means of hot alcohol-vapor baths administered throughout one hour at intervals of four hours. The patient was discharged four weeks after delivery and her urine at that time showed only a trace of albumin. There were no casts and the quantity of urea was almost normal.

CASE II (No. 3,683).—Mrs. N., aged thirty-four, VIII-gravida, referred to the Retreat, June 22d, by Dr. Brous. On examination, the patient's legs, face, and vulva were very œdematous. She had been passing a very small quantity of water which she stated stained her underclothing red. Immediately after admission she was catheterized, and only an ounce of urine was obtained which contained four fifths albumin by bulk, and a microscopic examination made without waiting for settling of the urine showed the presence of a large amount of blood; narrow hyaline and blood casts. There were nausea, occipital headache, and loss of vision in the right eye. A bougie was introduced at 3 P. M., after which 3 gtt. of croton oil were administered, followed in two hours by an eighth of a grain of elaterium. At 10 P. M. a glycerin enema was given, which was followed by a slight bowel movement. June 23d, feeble pains had occurred throughout the night; at 11 A. M. the cervix was softened and partially dilated; head not engaged; two bougies introduced; croton oil, 3 gtt.; catheterized, and three ounces of urine were obtained having the same character as above described. At 3.30 P. M., free bowel movement; active labor pains. Spontaneous birth of living



child at 4 P. M. ; 6 P. M., patient very restless ; respiration, 60 ; pulse, 160, weak and intermittent ; temperature,  $104^{\circ}$  ; caffeine (gr. j), digitalis (10 gtt.), were administered hypodermically every four hours ; ice cap to head ; hot wet pack. At 7 P. M., pulse, 144 ; respirations, 36 ; temperature,  $101^{\circ}$  F. Throughout the night caffeine (gr. iij), whisky (three drachms), and milk (two ounces), were administered every four hours, and the patient was kept continuously in the hot vapor bath.

June 24th, pulse, 104 ; temperature,  $99.2^{\circ}$  ; respirations, 20. Patient able to see the print of a newspaper, but was not able to read ; the left eye now had less vision than the right ; there was intense pain in the right supra-orbital region. Salines in saturated solution were administered throughout the day until free evacuation of the bowels occurred ; 10 P. M., pulse, 102 ; respirations, 30 ; temperature,  $99.8^{\circ}$ . In the next forty-eight hours the quantity of urine had rapidly increased to forty-eight ounces in the last twenty-four hours. The bowels were kept freely moving by means of salines and elaterium ; the skin was kept active by hot vapor baths for an hour, administered every three hours, and after the quantity of urine began to increase, Basham's mixture was substituted for the caffeine.

On July 13th two hyaline casts were found on one microscopic slide. The patient now complained of intense pain in the right sacro-iliac joint and was unable to rest her weight upon her right leg. Upon examination, the uterus was found to be displaced backward and evidently exerted pressure upon the sacral plexus. The uterus was replaced and a pessary was introduced. The pain finally disappeared after salicylates had been used over a period of three weeks.

CASE III (No. 3,826).—Mrs. M., aged twenty-two ; III-gravida. This patient was referred to the Retreat by Dr. C. E. Cadwallader, and gave the history of having been treated for dropsy prior to her present pregnancy. Admitted December 11th. Upon examination, the face, arms, legs, abdomen, and vulva showed widespread œdema ; the woman complained of headache and nausea, and was suffering from dyspnœa so extreme that she was compelled to sit on a chair in the ambulance which brought her to the hospital. Her pulse was 140, her respirations 60. No urine had been voided during the last eighteen hours, and by means of the catheter two ounces of porter-colored urine were drawn. Specific gravity, 1014, five sixths albumin by bulk ; reaction acid. Fourteen broad hyaline and blood casts were counted on the first slide examined. The patient was six and a half months pregnant. Dilatation of the cervix attempted by means of Barnes' bags was begun at 12.30. At 5 P. M. dyspnœa was so ex-

treme and the patient was apparently failing so rapidly that it was decided to empty the uterus at once ; the os was sufficiently dilated at this time to permit further manual dilatation sufficient to introduce axis-traction forceps. A macerated child was delivered at 6.30 P. M. After free purgation and tapping the pleural cavities, and profuse diaphoresis, the patient had somewhat improved. Notwithstanding ten to twenty stools a day, continuous hot vapor baths, free cupping over the lungs, administration of cardiac stimulants, and inhalations of oxygen, all efforts to prolong life and to secure action of the kidneys failed. The patient died six days after her delivery, having secreted throughout this period ten ounces of bloody urine. There were no convulsions. The autopsy was made by Dr. Thomas G. Ashton, whose notes are as follows :

#### AUTOPSY—MRS. MARTIN.

Body that of a young woman apparently about twenty-two years of age. Eyelids œdematous, œdema of abdominal wall, marked œdema of lower extremities ; skin distended and glistening. Slight discoloration of dependent portions of body.

A subcutaneous ecchymosis to the left of the sternum below clavicle, where wet cups had been applied.

Upon the abdomen, in the left iliac region, there is an abrasion of the skin, ante-mortem, due to excessive distention from anasarca. The abdomen is very prominent in the umbilical and hypogastric regions, due to tympanites.

The tissues of the thoracic and abdominal walls are œdematous upon section.

*The Thorax.*—Pleural cavities are filled with fluid, that of the left side containing about a litre and a half, that of the right about one litre, free from fibrin. An old adhesion, limited, between the lower portion of the upper lobe of the left lung and the parietal pleura upon the lateral aspect. Lungs elsewhere free from adhesions.

*Left lung* somewhat œdematous, crepitant throughout, no evidences of tuberculosis.

*Right lung* œdematous, crepitant, except the middle lobe, which was consolidated throughout, in the stage of gray hepatization. No infarcts.

*Pericardium* contained about ten ounces of serous fluid containing flakes of fibrin. No adhesions, or roughness of the surface.

*Heart*, size about normal.

Right auricle contained clots. Right ventricle filled with well-

marked chicken-fat clots, which extended well into the pulmonary artery. Tricuspid valves normal, admitting three fingers with ease. Pulmonary valves normal. Right ventricle of normal size.

Left auricle filled with soft red clots, which extended into left ventricle. Muscular substance of left ventricle normal.

Mitral valve somewhat thickened at its edges, and upon its auricular surface, a short distance from the edge of the leaflets, there exists a complete ring of fresh vegetations, which prevent the approximation of the valves, and produce a distinct narrowing of the mitral ring, so that the mitral orifice will no more than admit but one finger. These vegetations are friable and easily broken down. There are no evidences of ulceration.

*Abdomen.*—The abdominal cavity contained a considerable quantity of clear fluid, in amount about two litres. Intestines extremely pale and greatly distended. No evidences of peritonitis.

*Spleen* normal.

*Liver* normal.

*Kidneys.*—Both kidneys large; left five inches and a half in length, right five inches in length. Very pale and whitish in appearance. Capsule stripped easily, leaving a smooth surface. Upon section, the cortex was found to be much increased in width, and the difference between the cortex and the pyramids very ill-defined, the tissue being universally pale and somewhat granular in appearance.

The bladder was empty.

The uterus enlarged, coming well out of the pelvis. The ovaries and tubes showed nothing macroscopically abnormal; no evidences of septic infection.

*Prolapsed Cord.*—There have been four cases of prolapse of the umbilical cord. In the first case the cord prolapsed before engagement of the head occurred, and when the amniotic sac burst. The patient was placed in the knee-chest posture, and the cord was manually replaced. The membranes were then ruptured, and the head was held in position until a few uterine contractions caused engagement. A living child was born spontaneously.

In the second case, after engagement of the head the cord prolapsed when the amniotic sac ruptured. The knee-chest posture and manual and instrumental efforts to replace the cord were all unsuccessful. The pulsations in the cord ceased, and a rapid forceps delivery hastened by an episiotomy failed to save the infant. The third case accompanied a labor obstructed by a flat pelvis: Mrs. S. (Case No. 3806). The patient's first pregnancy terminated in a miscarriage

at two months. In her second labor craniotomy was performed by Dr. Price at the Retreat. In her third labor she was delivered by version of a living child. Her fourth labor was the one in which the cord was prolapsed; the membranes were ruptured, the os dilated, and the head was engaged when the patient entered the Retreat. At the first examination the pulsations in the prolapsed cord ceased while the examination was being made. All efforts to replace the cord having failed, forceps was at once applied and the child was delivered within five minutes. There were no pulsations of its heart. All efforts to revive the infant failed. The length of the cord was thirty-six inches, and the weight of the child seven and three quarter pounds. In the fourth case the prolapse of the cord occurred in the patient whose labor was complicated by a ventrofixation as previously described. This infant also perished.

The *malpresentations* which have been encountered and which required operative treatment have been the following: A shoulder presentation with prolapsed arm and a right occipito-posterior position with prolapse of the right arm alongside the head. In the former a living infant was delivered successfully by version. Unsuccessful efforts were made in the latter case to replace the prolapsed arm. The patient was then carefully watched and rotation of the occiput was assisted and expected. This plan of treatment was especially indicated, since the infant's viability was in doubt, the patient not having felt foetal movements for two days and the heart sounds being inaudible. The arm finally interfered with flexion of the head, and therefore with descent and rotation of the occiput. For these reasons forceps was applied, but with small hope of delivering a living child. When the child was born there was no sign of the heart's action and all efforts at resuscitation failed.

*Post-partum Hæmorrhage.*—There have been five cases of alarming hæmorrhage after labor. In two cases the hæmorrhage occurred before delivery of the placenta. These two cases were twin pregnancies. In two other cases the hæmorrhage occurred at intervals of one and one and a half hours respectively, after delivery. In the fifth case the hæmorrhage occurred two hours after delivery. Immediate evacuation of the blood clots accumulated in the uterus, and a hot intra-uterine douche of boiled water were sufficient to check the hæmorrhage in all the cases except one, which required the introduction of iodoform-gauze packing. All the women were multiparæ, and one was the mother of thirteen children. The puerperal period of all the cases was afebrile.

*Obstetric Operations.*

	Indications.	Number of cases.	Infantile deaths.
Forceps.	After-coming head .....	1	0
	Eclampsia.....	2	1
	Eclampsia threatened (chronic Bright's disease).	2	1 (premature birth).
	Feeble heart sounds.....	2	2
	Flat pelvis.....	5	0
	Inertia uteri .....	23	1 (inspiration pneumonia).
	Occipito-posterior presentation.....	4	0
	“ “ (occiput in sacral hollow).....	2	0
	Occipito-posterior presentation (with prolapsed arm ; absence of the heart sounds).....	1	1
	Placenta prævia.....	1	0
	Prolapse of umbilical cord.....	2	2
	“ “ “ (after cephalic version).....	1	1
	Premature separation of placenta.....	1	1
	Total multiparæ. 24 ; primiparæ, 23	47	10
Version.	Shoulder presentation with prolapsed arm (podalic).....	1	0
	Flat pelvis (podalic).....	2	1
	Labor complicated by ventro-fixation (cephalic).....	1	0
	Total.....	4	1
Induced labors.	Pelvic deformity.....	2	0
	Threatened eclampsia.....	3	1 (premature birth).
	Total.....	5	1
Symphyseotomy.	Flat pelvis.....	1	0
Episiotomy.	To effect rapid forceps delivery.....	1	0
Irrigation and curettage.	Elevated temperature : subinvolution ; prolongation of bloody lochia.....	9	0
	Offensive lochia.....	1	0
	Total.....	10	0
Sutured perineï.	Vaginal and perineal lacerations : multiparæ, 8 ; primiparæ, 36.....	44	0
Incision of mammary abscess.	Abscess following mastitis (mother)...	4	0
	“ “ “ (infant)....	4	1

Fifteen puerperal patients required the use of the catheter.

In one case the cervix required suturing to control hæmorrhage from a laceration.

*Lacerations of the Vagina.*—In the five hundred cases perineal and vaginal lacerations requiring suture have occurred forty-four times. In only two cases has union failed to occur. The suture material has invariably been silkworm gut sterilized by boiling just before being used. In two cases stitches have been necessary to control bleeding in the anterior vaginal wall near the urinary meatus. In one case it was necessary to stitch a laceration of the cervix to control free hæmorrhage. The lacerations extending into the vaginal sulci are always repaired in the same manner as in the secondary perinorrhaphy known as Emmet's operation on the posterior vaginal wall.

#### THE PUERPERIUM.

*Fever in the Puerperium.*—The analysis of the temperature charts of all the cases delivered in the Retreat since January 1, 1894, gives the following results: In twenty-one per cent. of the cases the temperature has not risen above 99° F.; in sixty-six per cent. of the cases the temperature has never been above 100° F.; in eighteen per cent. of the cases the temperature has been above 100° F. not longer than twenty-four hours; and in sixteen per cent. of the cases the temperature has remained above 100° F. for varying periods longer than twenty-four hours. An analysis of the temperatures throughout the first eight days of the puerperium—the period embraced by most German statistics—shows that the temperature did not rise above 100° F. in ninety-one and eight tenths per cent. In other words, the puerperal morbidity for the period named has been eight and two tenths per cent. The temperature charts are herewith exhibited to the Society, with the exception of fourteen, which are the charts of convalescent patients now in the Retreat, and with the exception of six charts of patients delivered early in January, 1894, which charts, together with the charts of all previous patients, disappeared shortly before I assumed charge of the Retreat. An analysis of the charts, showing temperatures above 100° F. for varying periods longer than twenty-four hours, gives the following result:

#### *Temperature above 100° F. longer than Twenty-four Hours.*

Cause of fever.	No. of cases.
Caked breasts, including also all cases of mastitis in which resolution occurred.....	33
Constipation.....	1
Eclampsia.....	3
Emotion.....	5
Exposure to cold.....	6



Cause of fever.	No. of cases.
Insanity (intercurrent delusions).....	1
Malaria.....	6
Mammary abscess :	
Interstitial, requiring incision.....	4
Parenchymatous—a small amount of pus expressed by massage..	3
Small abscess of areola.....	1
Neuralgia : facial, 1 ; supraorbital, 1.....	2
Phlegmasia alba dolens.....	2
Phthisis.....	2
Sapræmia.....	11

In two cases there was a rise of temperature to  $104^{\circ}$  F. due to *emotion*. In one case the patient suddenly was told that her husband had been killed in a railroad accident, and the temperature rose from  $98.8^{\circ}$  F. to  $104^{\circ}$  F. The following day it was normal. In another case the temperature rose to  $104.2^{\circ}$  F. when a patient had for several hours the delusion that her infant had been substituted for the infant of the patient who occupied the adjacent bed, and who was so alarmed that her temperature immediately became elevated. A temporary and moderate elevation of temperature ( $100^{\circ}$  F. to  $102^{\circ}$  F.) in three other cases was apparently due to emotional excitement. In two cases the temperature rose from  $99^{\circ}$  F. to  $104^{\circ}$  F. from *exposure to cold*. Both patients left their beds on the eighth day and walked through a cold corridor to a closet. In four cases the exposure incident to using the commode caused a rise of temperature. In one case a temperature of  $102^{\circ}$  F. was observed as the result of *constipation*.

There have been two cases of *phthisis* which complicated labor and the puerperal period. The charts of these cases are herewith presented. One case (No. 3,902), Mrs. K., entered the hospital with fever, cough, and expectoration of moderate severity. The relief to the patient's embarrassed respiration was most marked after her delivery. The temperature slowly declined until it was almost normal, ten days after delivery.

The second case (No. 3,652) was that of an Indian girl sent to the Retreat from the Lincoln Institute. I had seen the patient with Dr. Cochran McClelland at the Lincoln Institute several months before her admission to the Retreat. At this time she was very weak and emaciated. She came to the hospital in active labor, and was delivered on the day of her admission. Her early puerperal convalescence was trying from the fact that she had profuse pulmonary hæmorrhages which occasioned great prostration and weakness. Her strength, however, gradually improved ; her pulse averaged between

90 and 100 ; and, as you will observe on her temperature chart, there was at no time the slightest evidence of puerperal sepsis. After remaining at the Retreat three weeks she was removed to the Lincoln Institute at the request of and by Mrs. Ashbridge, one of the managers of that institution, who had planned to take the patient to the country to aid her convalescence. It has been asserted that this patient died, shortly after leaving the Retreat, of puerperal sepsis. In order that the history of this case may be complete, I have appended a letter from Dr. Cochran McClelland, who had charge of the patient before she entered and after she left the Preston Retreat.

“316 SOUTH ELEVENTH STREET, PHILADELPHIA, *November 11, 1895.*

“DEAR DR. NORRIS: In answer to your request, permit me to say that the Indian girl, Nettie Roubadeau, had been suffering from phthisis several months prior to her admission into the Preston Retreat. At the time she left the Lincoln Institute, May 14, 1894, the disease was far advanced; after her return, June 2, 1894, she ran down rapidly, and died of phthisis August 11, 1894.

“(Signed.)

Very truly yours,

“C. MCCLELLAND.”

*Mastitis and Mammary Abscess.*—The routine management at the Retreat of the breasts and nipples is as follows: When the flow of milk appears each patient wears a Murphy binder pinned in such a manner as to give support to the breasts, but not to compress them. The infant's mouth before, and the mother's nipples both before and after nursing are cleansed with a clean cloth and a saturated solution of boric acid. At the first appearance of sore nipples the latter are kept scrupulously clean and are covered with a disk of waxed paper upon which is spread a film of paste composed of equal parts of bismuth subnitrate and castor oil with twenty grains of boric acid to the ounce of paste. A glass nipple shield is used if nursing is very painful. Caked breasts are promptly relieved by massage combined with a cautious use of the breast pump. I have taught my nurses four distinct manipulations in breast massage, as shown in the accompanying illustrations. Fig. 1 illustrates light but rapid strokes with the finger tips. Fig. 2 shows deeper pressure with the finger tips over an inflamed nodule. In Fig. 3 the hand is placed over the nodule, and pressure against the chest wall is alternated with gentle rotatory movements. Fig. 4 illustrates compression of the breast kept up so long as milk flows from the nipple. The first three movements are used in succession, each for a period of about five minutes, and the manipulations

are repeated until the breast is soft and flaccid, when a firm compression binder is applied. Massage of the breast is facilitated by anointing the breast with camphorated or carbolated oil. I also try to teach the nurse the variety of mastitis in which massage is harmful—namely, the interstitial variety, which usually can be recog-



FIG. 1.—Breast massage. (Dickinson).

nized by the following clinical signs: A gradual rise of temperature following a sore nipple which has refused to heal; a dull pain or aching in the breast rather than an exquisitely tender spot over an enlarged nodule; early redness and œdema of the skin at a portion of the breast corresponding to the situation of the fissured nipple; and sometimes slight enlargement and tenderness of the axillary glands. This group of clinical signs points to involvement of the connective

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NOTE.—The accompanying illustrations of "Breast Massage" are taken from *An American Text-book of Obstetrics*, by the kind permission of the publisher.

tissue and contraindicates all manipulations. Rest for the gland and the nipple is now indicated and is obtained by a Murphy binder, which is to give support, not compression, and under which is applied lead water and laudanum, and, if agreeable to the patient, an ice bag is kept in place outside the binder. Prompt measures are taken to heal the sore nipple. Forty-eight or seventy-two hours of rest will either cause resolution with a fall in temperature and slowing of the pulse, or more often the symptoms will be aggravated, indicating the formation of pus which should promptly be evacuated.

Parenchymatous inflammation following a caked breast and confined wholly or largely to the milk-secreting structures of the gland can almost always be made to undergo resolution by the skillful use



FIG. 2.—Breast massage. (Dickinson).

of massage and the breast pump, with early healing of the sore nipple, a firm compression binder, and prompt derivative action of a saline cathartic. Sometimes all the signs of breast inflammation subside,

and immediately, or even after several days, a small amount of pus is rubbed or sucked from the breast, which is a matter of surprise to those who have not observed this sequel. Three of the cases of abscess included in this report were of this character.



FIG. 3.—Breast massage. (Dickinson).

*Mastitis.*—There have been four cases of mammary abscesses which required incision and drainage. Two of these cases were found in the convalescent ward when I took charge of the institution. In three other cases, after all symptoms of mastitis had disappeared and after the temperature had returned to normal, a small amount of pus was removed by massage. In three other cases small abscesses of the areola were observed. In one case, that of Mrs. C. (No. 3,940), whose chart I exhibit, the temperature rose to  $102^{\circ}$  F. on the seventh day. The breasts were found caked and the nipples sore. The woman was a very unruly patient, and invariably removed the breast bandages and other dressings applied to the nipples. She reso-

lutely refused to allow the nurse to keep the nipples clean. Despite all our efforts, the mastitis could not be held in check, and on the eleventh day pus was removed from each breast by massage. The pulse at no time was above  $100^{\circ}$  F. and the parturient tract was in every respect normal. Immediately after the removal of the small amount of pus from the breasts the temperature fell to normal and remained so for four days. The patient, being ashamed of her willfulness, desired



FIG. 4.—Breast massage. (Dickinson).

to leave the hospital, but her request was refused, since her mother-in-law told me there was no one at her home to give the patient proper attention. An interview with her mother-in-law at the hospital caused a family quarrel; under the emotion and excitement the patient's temperature became elevated. That evening at nine o'clock the woman dressed herself and eloped from the institution. Since it has been asserted that this patient also died of puerperal sepsis I desire to append as a portion of the history of this case the following letter :



" MUNICIPAL HOSPITAL, TWENTY-SECOND STREET AND LEHIGH AVENUE,  
PHILADELPHIA, August 4, 1895.

"*Dr. Richard C. Norris, Philadelphia, Pa.*

"DEAR DOCTOR: Mrs. Cunningham was admitted to this hospital on July 27, 1895, suffering from what was believed to be scarlatina. The rash was very intense and of a livid color. Desquamation was noticed on admission, and a little later it became very profuse. The disease rapidly assumed a malignant type and death resulted on July 30th.

Yours very truly,

. " (Signed.) "W. W. WELCH, *Physician in Charge.*"

Since receiving this letter I have had a conversation with Dr. Welch in which he told me that he had carefully examined the patient's parturient canal to detect possible puerperal sepsis and that he was not able to find any evidence of such infection. His opinion was and is that the case was one of scarlet fever.

The patient was admitted to the Retreat June 18, 1895, and was delivered June 30th. Her temperature and pulse were normal throughout four days before she eloped from the Retreat July 15th. I visited the patient at the request of her husband after she returned to her home. Her breasts were giving her trouble and the child was ill with vomiting and purging. The woman refused to permit lancing the breasts.

A day or two later I referred the case to Dr. H. W. Hassel. A few days later the patient was referred to the city district physician. I never saw the patient in consultation with any physician, and subsequently hearing of her death, which was a matter of great surprise to me, I immediately wrote to Dr. Welch, sending him her history and asking the cause of death. The above letter is his reply, received August 5, 1895.

The most instructive case (No. 3,807) of mammary abscess was that of Mrs. K., II-gravida. Until the thirteenth day of her puerperium the temperature and pulse had been normal. She now began to suffer from a sore nipple, which was soon followed by mastitis, ending in the formation of a virulent mammary abscess. The patient had cleansed her nipples with the water used to wash her child after it had evacuated the bowel. Infection of the nipple from this water was unmistakable. The abscess which followed presented the most virulent characteristics of any mammary abscess I have ever observed. Disseminated foci of suppuration were found throughout the entire breast, and in the post-mammary connective tissue extend-

ing up to and over the left shoulder. A large number of multiple incisions were required to obtain free drainage. The overlying skin was intensely red and presented the appearance of erysipelatous inflammation extending to the shoulder and to the opposite breast. The patient was soon profoundly septic; she was drowsy; her face and eyelids were pale and œdematous, and the urine now for the first time showed numerous casts and one third albumin by bulk. Prior to delivery her urine had been normal. Free stimulation was required to tide the patient over the critical period of her disease, and she finally entirely recovered after a most desperate illness. The parturient tract was at all times normal. Pus from the mammary abscess was critically examined by my friend, Dr. S. S. Kneass. The mode of infection indicated the possibility of the presence of the *Bacillus coli communis*, but diligent search was unable to find the latter. The results of the examination made by Dr. Kneass are shown in the following letter:

“January 14, 1895.

“DEAR DR. NORRIS: A culture from the pus of the case of mammary abscess shows only an orange coccus, in all probability the orange pyogenic variety. Petri plate growths give pure cultures of the same organism, and a microscopical examination of the pus itself gives the same result. No streptococcus is present. I have injected guinea-pigs in order to test the virulence of the microbe, and will report results.

Yours truly,

“(Signed.)

SAMUEL S. KNEASS.”

The injection experiments failed to discover other micro-organisms.

One case of galactorrhœa and one of polythelia should be recorded.

*Curettage*.—I have found it desirable in ten cases to explore the interior of the womb with the finger and to resort to a single intra-uterine irrigation, curettage, and gauze packing. This is a very much smaller proportion (five per cent.) than I have observed in the cases which I am called upon to treat outside the hospital. When patients are delivered under aseptic surroundings with scrupulous care to employ a rigid antiseptic technique, the frequency for using the curette will certainly be small. In the cases here recorded, only one had an offensive discharge, and this latter case is the only one of offensive discharge that I have observed in my work at the Retreat. This patient had a sharply anteflexed uterus which prevented

drainage of the lochia. Excepting this case, the indications for exploring the uterus with the finger and using the curette have invariably been a moderately elevated temperature; the pulse rarely above  $100^{\circ}$  or  $110^{\circ}$  F., and always a subinvolted uterus which was found to contain hypertrophied decidua that gave rise to prolongation of the bloody lochia. The odor of the lochial discharge in these cases is not offensive, and although there is no evidence of putrefaction, some toxic principle is surely absorbed by the patient, otherwise the elevated temperature and quickened pulse are hard to explain. In one case an enormous amount of hypertrophied decidua was removed; in three of the cases a sharp flexion produced angulation of the uterine canal, and thus interfered with free drainage and with uterine retraction. In two cases a blood examination finally made the diagnosis of malaria. In one case the removal of the gauze packing was intrusted to a nurse. One strip of the gauze employed was overlooked. Although the patient was up and about the ward, it is noteworthy that the gauze produced no elevation of temperature until seven days had passed, when a rise in temperature and intermittent uterine pains led to an investigation, which brought to light the fact that a strip of gauze was yet in the uterus; the gauze was removed and presented a perfectly healthy odor. The uterus was irrigated, and within twenty-four hours the temperature was normal and remained so. I am convinced that the use of the curette in such cases as I have reported is a valuable means of preventing possible infection of serious character. An intelligent use of this instrument usually requires a preliminary introduction of the finger, often under ether, to locate the site of the tissue to be removed, and thus to avoid scraping and injuring areas of the uterine cavity that not only do not need curetting but may, by the trauma produced, open avenues for widespread infection.

*Malaria.*—There have been six cases of malaria complicating the puerperium. The diagnosis in three of the cases was made by a blood examination which found the malarial plasmodium. In the other cases a blood examination was not obtained, and the diagnosis was made by the absence of any sign of puerperal sepsis, by the periodicity of the chill and the fever, and by the efficacy of quinine. A study of the charts brings out a fact with reference to the ratio between the pulse and temperature that I have observed in other cases. I have never seen a case of puerperal sepsis that was not accompanied by greater rapidity of pulse in proportion to the temperature than is observed in malaria complicating the puerperium. It is not improb-

able that the physiological slowing of the pulse in the puerperium is more rapidly overcome by sepsis than by malaria. The tonic action of quinine upon the circulation is not enough to explain the relative slowing of the pulse. For example, in one of the cases the temperature remained at  $105^{\circ}$  F. throughout twenty-four hours, and the pulse varied between 100 and 116. In another case the temperature remained for a time at  $104^{\circ}$  F., the pulse varying between 88 and 96. And in another the temperature was  $102^{\circ}$  F., with the pulse 80. I believe this point is of some value in diagnosis. The necessity sometimes of employing large doses of quinine was also exemplified. In one of the cases it was necessary to administer one hundred grains of quinine in forty-eight hours before cinchonism appeared and before the temperature fell to normal. In two other cases a reduction of the daily dose from thirty to fifteen grains was invariably followed by a rise in temperature and recurrence of chill. When cinchonism was produced a smaller dose was sufficient to control the fever. The histories of three of the cases pointed to the fact that the patients had suffered from malarial fever within a year. Three other patients, in two of whom the malarial plasmodium was found, gave no such history. In five cases the first evidence of fever appeared on the fourth or fifth day. In one case there was a fluctuation in the temperature curve from the very first day. It has been my experience that when very large doses of quinine are administered to a nursing woman the milk is likely to disagree with the child, and for this reason it is better temporarily to discontinue nursing. A daily dose of fifteen to twenty grains apparently produced no ill effect upon the child.

*Phlegmasia.*—There have been two mild cases of phlegmasia alba dolens. In one case (No. 3,923) the patient, Mrs. H., a primi-gravida, had an attack of phlegmasia during her pregnancy for which she was treated before she was admitted to the Preston Retreat. Her labor was a natural one, and her temperature remained below  $99^{\circ}$  F. until the eighth day, when there was a gradual rise of temperature which remained between  $100^{\circ}$  F. and  $101^{\circ}$  F. until the seventeenth day, after which time it was practically normal; the pulse very rarely was above 90, the average being about 85. She was kept in the hospital until the swelling of her left leg had entirely disappeared.

In another patient (No. 3,933), with extensive varicose veins of the legs, a clot evidently formed in a vein in the calf of the left leg and gave the patient considerable pain for several days. This woman had phlegmasia in childhood as a sequel of scarlatina.

Both patients left the hospital completely convalescent.

#### PATHOLOGY OF EARLY INFANCY.

*Ophthalmia.*—Finding that the ante-partum sublimated vaginal douche had been relied upon at the Retreat to prevent gonorrhœa ophthalmia, I was induced to rely on this means for the prevention of this unfortunate disease. At the end of the first eight months of my service three cases of ophthalmia had occurred, and a fourth case developed within a few days. The infection of the latter child occurred in a very curious manner. The child's mother had a scant supply of milk, and she clandestinely permitted her infant to be nursed by a patient whose child at the time was suffering from ophthalmia. A violent attack occurred in the child thus exposed, who had presented no signs of ophthalmia for ten days after its birth.

All the cases were isolated and recovered without loss of vision. The treatment employed was a ten-grain solution of silver nitrate carefully applied to the everted eyelids night and morning, while a free discharge of pus occurred; the use of atropine to secure dilatation of the pupil when the cornea was much involved; hourly douches of boric-acid solution; and iced compresses to reduce the swelling in the early stages. Hot applications were made in one case in which the tendency to corneal ulceration was imminent. Since the occurrence of these cases—in December, 1894—the Credé method of instilling one drop of a two-per-cent. solution of nitrate of silver in both eyes of the child immediately after birth has been routinely followed. Of the two hundred and forty-six children delivered since that date, there has been but one mild case of ophthalmia, which developed nine days after birth, and which was readily controlled by four or five days' active treatment. This experience has convinced me that the Credé method of preventing ophthalmia should never be neglected in hospital practice.

There have been two cases of very marked *anæmia*. The mother of one of the infants was herself very anæmic, and presented mild delusions at intervals during the puerperium. There was no hæmorrhage from the child's navel or from its bowels to account for the pronounced anæmia. The child nursed regularly, and left the hospital in apparently good health with the exception of its pale appearance. The second case was that of a child born of a blind, poorly nourished, and very feeble mother. The infant was put to the breasts of another patient, but failed to thrive, and died within a few days.

Two cases of *infection of the umbilicus* should be recorded. In one case, on the seventh day, the nurse noticed spasmodic twitch-



ing of the child's arms and legs. The spasms were more pronounced on the right side, and by evening they had become general. The area of the umbilical wound was healthy, but deep in the cavity there was some thick yellow pus and dirty gray membrane. The ulcer was touched with a 1-to-500 bichloride solution, and was dusted with iodoform. Bromide of potassium in two-grain doses was given every two hours. After forty-eight hours the spasms ceased, the umbilicus was healthy, and the little patient had no further trouble.

A case of *suppurative otitis* was observed in a newborn infant on the eleventh day. The umbilicus of this child showed a slight amount of inflammation with a film of pus. Both the ear and umbilicus were kept antiseptically clean thereafter, and the discharge from the ear soon ceased.

Two cases of *suppuration in the tissues surrounding but not involving the knee joint* were observed. One case was that of a child with double harelip and cleft palate. On the thirteenth day the right knee was swollen, red, and painful. Two days later the abscess was opened and was found not to communicate with the joint cavity. The pus from the abscess was examined for tubercle bacilli, as there was a very strong tubercular family history, but the tubercle bacillus was not discovered. I considered the joint abscess metastatic, possibly from the child's nasopharynx, which had a muco-purulent discharge due to the irritation caused by feeding the child.

The second case of abscess of the knee occurred in a child whose umbilicus had never presented any signs of inflammation or infection. The child's mother had mastitis, and it is quite possible that infection originated from the milk.

Twelve cases of *mastitis*, four of which were followed by suppuration, have occurred in the newborn infants in spite of all precautions. Of the infants, five were males and seven were females. I have found it impossible to prevent the mother from squeezing and otherwise handling the child's breast when the latter is swollen, and to this fact the large proportion of abscesses is doubtless due.

One of the cases was especially interesting by reason of its remarkable virulence. The left breast was somewhat enlarged and slightly red. Within forty-eight hours pus formed beneath the skin and the child presented constitutional signs of serious illness. The pulse and temperature were respectively 190 and 104° F. Despite free incision, drainage, and antisepsis, the destructive inflammation exposed the ribs, penetrated the pleural cavity, and caused the child's death within three days. I regret that a bacteriological study of this



case was not made. The infecting agent was doubtless a very virulent streptococcus.

Appended is a tabulated statement of the affections of the newborn infant that seem worth recording, and a table of infantile deaths :

	Cases.	Recovered.	Died.
Asphyxia pallida.....	15	8	7
Anæmia.....	2	1	1
Pneumonia (inspiration).....	9	5	4
Omphalorrhagia.....	2	2	
Ophthalmia.....	5	5	
Infection of the umbilicus.....	2	2	
Harelip.....	1		
Cleft palate.....	1		
Sclerema.....	1		1 (5 days after leaving hosp.)
Mastitis.....	8	8	
Mammary abscess.....	4	3	1
Tongue-tie.....	5	5	
Bloody discharge from genitals of female children.....	2	2	

*Table of Infantile Deaths. Mortality, 7.02 Per Cent.*

	No. of deaths.	Remarks.
Anæmia.	1	The infant's mother nearly perished from lack of food before entering the hospital.
Anencephalic monster.	1	Premature labor at 7th month of pregnancy.
Asphyxia neonatorum: Following natural delivery.	3	
Do., following instrumental delivery.	4	1 case ; heart sounds inaudible before forceps applied. 1 " delivery during maternal eclampsia. 1 " prolonged labor ; forceps used on account of feeble heart sounds. 1 case ; presentation right occipito-posterior and prolapsed arm. Neither foetal heart sounds nor foetal movements detected after labor began.
Congenital anomaly of heart.	1	Death 10 hours after delivery ; congenital cyanosis.
Intracranial hæmorrhage.	2	1 case ; death on 3d day after version for flat pelvis. 1 " rapid extraction of natural breech presentation ; death on the 13th day.
Mammary abscess.	1	Death on the 12th day ; rapid suppuration exposing the child's ribs in 72 hours.
Overlying by mother.(?)	1	Natural delivery ; infant healthy ; found dead in bed with mother on 2d day.
Premature birth.	4	Births occurred prior to 7th month of pregnancy.
Premature detachment of normally situated placenta.	1	Heart sounds feeble before rapid forceps delivery.
Pneumonia (inspiration).	4	1 forceps delivery ; death occurred respectively 24, 48, 60, and 70 hours after birth. 1 labor complicated by hydramnion.

	No. of deaths.	Remarks.
Prolapse of umbilical cord.	3	Rapid delivery with forceps in all the cases after efforts at reposition failed. Cephalic version in one case for labor obstructed by ventrofixation of the uterus.
Stillborn and macerated.	3	1 case ; extensive fibroid degeneration of placenta.
Syphilis.	7	1 " umbilical cord knotted. The diagnosis in all cases made by autopsy and by maternal and paternal histories.
Total,	36	An autopsy was made in each case when the cause of death was in doubt.

The autopsies were made by Dr. C. W. Burr by Dr. Alfred Stengel.

### GONORRHOEAL LABOR.\*

By H. LEAMAN, M. D., PHILADELPHIA.

Gonorrhœal labor is a modern innovation. There are pains in pregnant women which precede labor from two to six weeks, and even longer, which are very annoying, and frequently become so severe as to lead the patient to send for her physician, believing that labor has really set in. This is the only reason for calling them false labor pains. These pains resemble the monthly sick pains that women frequently experience. They are felt in the back or groins, or both, and occasionally on the anterior surface of the thigh, and are intermittent in character. They really have nothing to do with labor, although they deceive the patient on account of their resemblance to the premonitory pains of labor. Pains felt high up in the hypochondriac regions, right or left, are frequently due to the abdominal muscles, and may be relieved by a bandage. They are felt as early as the fifth or sixth month, and definitely localized. Occasionally there is a side pain situated lower down, due to the irritation of an inflamed ovary. Intestinal pains are generally distinguished from these by attending circumstances, such as indigestion, constipation, or indiscretion of diet. One element in the excitation of these pains is doubtless a nervous temperament or a nervous condition due to overwork, worry, or change of life. Normal pregnancy in a healthy wom-

\* Read before the Philadelphia Obstetrical Society, January 2, 1896.

an is free from pain until its close. What, then, are the causes of this modification of normal labor? From observation I can find only two well-marked causes—viz., old and sore lacerations of the cervix, either large or small, and gonorrhœal irritation in a greater or less degree. Both may exist together. I will now proceed to give in general outline a report of a case typical of so called false pains, and which, in my observation, is a misnomer :

Recently, on August 7, 1895, I was called to see a lady, a multipara, thirty-seven years of age. I found her in bed, fully believing that she was in labor, and would have her baby before morning. Her time for labor, according to count, was September 23, 1895. Having made a vaginal examination, and having assured her that she would have no child at this time, after giving morphine and camphor water to relieve unnecessary pains, I told her to rest easy. These pains were in the iliac regions, extending into the back and *vice versa*, intermittently, and occasionally passing into the anterior part of the thighs, unaccompanied by any signs whatever of dilatation of the cervix, or perceptible contractions of the uterus. On September 2d I was again sent for. The pains were of the same character as before, and had been experienced daily since my last visit. Upon placing my hand upon the uterine globe there was no perceptible contraction in the uterine muscles. On making a vaginal examination, the cervix was found to be lacerated in the second degree, and the index finger passed readily within the internal os of the uterus. The head and membranes could be plainly felt. I could not have done this on the previous occasion. In such an examination much care should be exercised lest the membranes be broken. This open condition I have often observed under similar circumstances. These pains continued daily until 5.15 A. M. on September 14th, when the child was suddenly born, with no more than five labor pains. This was the observation of the nurse, as the child had been born five minutes before I arrived. In this case there was also a slight vaginal discharge, suggesting the possibility of mild gonorrhœal infection, for which I had prescribed the daily use of the syringe with creolin. There was, however, in this case undoubtedly an underlying nervous condition, due to commencing change of life, and in many of these cases I believe this condition to be probably, indeed, operative.

Gonorrhœal labor differs from the case above described in the fact that the pains are greater in degree, and are really accompanied with genuine uterine contractions and a decided effort at dilatation which, after continuing a few hours, subside entirely for a few days or weeks.

They are also accompanied with a profuse irritating discharge and with burning in passing water.

CASE I.—Mrs. R., pregnant with the third child, went into labor May 10, 1886, at 10 A. M., and had well-marked labor pains, accompanied with well-marked effort at dilatation and a show of blood, which continued until 12 P. M. They then ceased entirely until 7 A. M. of May 11th. During May 11th she continued to feel slight pains, which gradually ceased, and she then remained free from pain until May 14th at 5 P. M., when labor set in, and the child was born at 7.25 in the evening. Through neglect of the syringe by the nurse, the infant suffered with a violent and prolonged attack of double ophthalmia, but finally recovered with good eyes.

CASE II.—Mrs. F., pregnant with the fourth child, was taken with pains August 29, 1890, and in my absence sent for several physicians who gave her attention until September 1st. When I saw her I recognized an acute attack of gonorrhœa, which had brought on labor pains, accompanied with an effort at dilatation; also profuse gonorrhœal flow, burning in passing water, followed with rheumatic swelling of the large joint of the right index finger, which remained painful for two weeks. Labor set in September 13, 1890, and the child was born at 4.30 P. M. Owing to neglect in carefulness enjoined in cleansing during the previous two weeks and during labor, the child suffered from double ophthalmia, and after long treatment recovered with the loss of one eye.

CASE III.—Mrs. C. sent for me May 28, 1895, being, as she fully believed, in active labor, and in which she apparently was. Being called at 3 A. M., I remained until 6 A. M. During this time she had regular active labor pains and profuse leucorrhœa with a well-marked effort at dilatation. I visited her several times that day and the following day, when the pains gradually subsided and she went about the house as usual. The lady who waited on, her being in the house, syringed her and cleansed her faithfully, and administered treatment daily until she went into labor June 15, 1895, her child being born at 2.10 P. M. As the vagina had been cleansed frequently during labor and the child's eyes washed with boric-acid solution, there was no ophthalmia, and the patient made an uninterrupted recovery.

The treatment in these cases should be thorough cleansing before, during, and after birth, with treatment of fœtal eyes. In healthy children and healthy labors the vernix caseosa is sufficient to protect the eyes, and, in my judgment, only in suspicious cases should the eyes be treated.

These three cases, though not sufficient to prove anything beyond a doubt, still show a uniformity in their testimony to an abnormal interference with pregnancy. They agree in the clinical fact that they were gonorrhœal in origin, as is shown by the ophthalmia in two cases, and in the third the patient confessed to the pains having followed a connection. The discharge in this latter case was the most profuse and irritating in character that I have seen. Although the gonococcus was not demonstrated, yet the clinical proof was beyond a doubt. These pains differed essentially from so-called false labor pains in the fact that they were accompanied by an effort at dilatation, and the contraction of the uterus could be readily felt on the abdomen continuing for several hours, and then after entire cessation for several days or weeks labor set in and was completed naturally.

False labor pains, so called, in my judgment, are due to uterine irritation, originating in an inflamed and lacerated cervix, and frequently with the adjunct of mild gonorrhœal infection.

832 N. BROAD STREET.

## MIDWIFERY IN GOA.

BY VIVIATO J. PINTO, M. D.,

Professor of Anatomy and Medical Jurisprudence in the Medical School of Goa,  
Portuguese India.

Midwifery here is a profession which any woman takes up without suitable training. A woman who attends a few labor cases thinks she knows enough of the practice. Fortunately, such midwives are now falling into disrepute, and qualified practitioners are called in, chiefly by the better classes.

A brief description of the old superstitious practice will be interesting because, notwithstanding its tyranny, the people appear to have resisted its ill effects by reason of their constitutions, which are stronger than ours.

Pregnant women are not allowed to eat, for fear of abortive properties, of the cooked leaves and fruit of *Guilandina moringa* and *Cucurbita melopepo*; the ripe fruit of *anonac*, *Cucumis melo*, *Artocarpus integrifolia*, *Ananasa sativa*, *Anacardium occidentale*, and *plantago* (a species which produces large plantains); the tender shoots of *Andropogon bambus* and *Brassica oleracea gengiloides*.

The following are reputed to produce cold: Vinegar, the fruit of



*Cucurbita citrulus*, *Cucumis sativus*, *Eugenia jambulana*, *Punica granatum*, *Garcinia purpurea*, *Averrhoa carambola*, and *Zizyphus jujuba*, and they are accordingly prohibited.

Pregnant women are allowed neither to live in the neighborhood of a confined woman nor to visit her from the third to the eighth day. They are enjoined to wear their dress somewhat tight lest the foetus should invade the thoracic cavity!

Up to the sixth month of pregnancy, and not later, they may renew the country bangles worn on the wrists. They must not do this later, lest the umbilical cord should twist round the neck or limbs of the child.

Cold baths are prohibited and backaches are treated with conjee (gruel) of *Trigonella fœnum-græcum*.

They must not sit on the doorsteps nor on brooms (made of the midribs of cocoanut leaflets), tether cattle or do similar work; and during an eclipse they are strictly prohibited from pounding or crushing anything and handling a knife or other cutting instrument, because it is believed that the cutting of the leg of a chicken, for instance, causes the amputation of the corresponding part of the child, and so on.

During the sixth and the eighth months, crossing the limits of the village is supposed to be hurtful.

From the seventh month of pregnancy to three months after the confinement cold water is not to be touched, and at the end of the second or third week of the seventh month two ounces of blood or more are withdrawn by venesection, regardless of the state of their health, and, two days after, a purgative dose of magnesia is given.

The above are about all the hygienic and therapeutic measures taken by the midwives during pregnancy.

When a woman has pains, whether true or false, the midwife, unable to diagnose them, administers an infusion of onions, cumin seed, *Trigonella fœnum-græcum* and the bark of a mango tree (*Mangifera indica*) that has not produced fruit, to decrease them if false or to increase them if true. In the latter case the poor woman is imprisoned in a small, dark, ill-ventilated room, in which, to add to her misery, a number of female friends or neighbors gather and, by way of lightening her pains, recount, in all their details, cases of difficult labors they may have heard of; to make matters worse, some of them turn the small apartment into a smoking room. It may be imagined what an overwhelming depression must get hold of her, particularly if she be a nervous primipara.

When the os dilates so as to admit a couple of fingers the poor woman is seated on a rectangular wooden stool having a large opening in the center under which some cloth or a vessel is placed, and the midwife sits behind her to make the necessary manœuvres: the woman's head is tied with a common rough string across the forehead to prevent vertigo and a towel is coiled round at the level of the xyphoid cartilage to retain the child in the abdominal cavity. It is said that a child, in the absence of this precaution, once laid hold of the mother's heart, which was only released by a quack timely puncturing the child's hand through the cardiac region! The abdomen is rubbed with oil or the yolk of an egg to facilitate the labor, and the former is also applied to the sacral region to relieve the back-ache. The genital canal is oiled, irrespective of uterine contractions, and oil is also applied, even during a contraction, to the uterine cavity as far as it can be done. No matter what the stage of the labor may be, expulsive efforts are urged. The perinæum is supported by pressing upon it with a piece of cloth held in the hand, from below upward during contractions, and is oiled during the intervals.

At the end of the second stage a metal vessel is beaten upon to make the child fearless, and the baby is not separated from the mother even if it cries lustily. After this they proceed to extract the placenta (either while the patient is seated or is upon her knees, kept wide apart), the retention of which, whether due to uterine fatigue or not, is appalling to them. Abdominal frictions with the juice of onions are then made, the hair of the confined woman is rubbed on her tongue, worms and the fæcal matter of animals, draughts of wood ashes, or the raw juice of a chicken pounded to a pulp, are given to provoke nausea. Should these means fail to cause the expulsion, the midwife actually catches hold of the cord and keeps tugging at it, and some, more rash than others, introduce the hand and somehow or other extract the placenta, of the integrity of which they can not judge, and so rest satisfied with the feat. The placenta is then buried somewhere in the house.

All this time the newborn child, quite unprotected, either remains on the ground, soiled with blood, or in the hands of some charitable woman. Under the umbilical cord a towel is laid for receiving, from the near relatives of the newborn, presents of money for the midwife; after this ceremony the cord is ligatured, nine inches long, and divided, and the child is handed over to some one; the knife, together with the worn-out broom used for sweeping the room, being placed under the mother's pillow during the puerperium.

Should there be hæmorrhage after the third stage, the only hæmostatic used is a stimulating fomentation, which sometimes, added to syncope, stops it.

Regardless of the state of the uterus and the pulse, the midwife puts on the binder—a piece of cloth of extraordinary size, about a foot wide and twenty-four feet long, coiled round and round the abdomen—the poor patient standing up with or without support. This operation is repeated every day during the puerperal period. Thick folds of cloth, on which is poured a glass of Lisbon wine (or of country liquor, in the case of primiparæ), are used for receiving the lochial discharge, being renewed only when soaked, no matter what time this takes. The genitals are washed by seating the patient on the aforementioned square stool—whether the lochial discharge is offensive or not—and the perinæum, lacerated or not, is considered of no consequence. With this the parturient is marched off to her bed, generally spread on the ground, in which she has to sit up, supported or not, for a couple of hours. This posture is warranted by the *sage femmes* to avoid vertigo, syncope and convulsions; if it does not, all other means are tried but the position is not altered. While in the same position a glass of country spirits is served to whet the appetite, followed by a large quantity of coarse rice and curry, regardless of her digestive powers. Naturally she devours it, both on account of the stimulating effects of the liquor and of the long fast. This results in after-pains, which are treated with liberal doses of the same stimulants. It is also abundantly served to all present, whether they like it or not, so that the fumes of the drink pervade the whole house. This is the case especially when the firstborn is a male child.

The child is violently rubbed with a mixture of tamarind pulp, yolk of an egg and rice flour, then with oil, and is finally washed in hot water mixed with Lisbon wine or country liquor, the poor little thing crying piteously all the while. During the inunction various parts of the head and face are, as it were, molded into proper shape—for instance, if the forehead bulges out it is pressed in, if the nose appears flat or short it is elevated or pulled down, and so on. The process of shaping is carried on for a couple of weeks or more, and to it alone is ascribed the regularity of the features. A foot bath in hot oil is given, and pieces of cloth soaked in oil are put on the head for curing any chill. The child is then wrapped in cotton stuffs and given insipid rice conjee or thin gruel, sometimes mixed with castor oil sweetened with jagghery, for two days; then it is put to the mother's breast. A very hard experience for the poor creature at the very outset of life!

In the case of stillborn children an attempt at resuscitation is made by, as it were, breathing life into them, as follows: They are fomented with hot oil and treated with the smoke of country cigars (made by rolling tobacco in dry plantain leaf) held in the mouth by the lighted end, the smoke being blown through the other end *into all the orifices* of the body; or with breath impregnated with garlic, crushed and held in the mouth. If these efforts be fruitless, the midwife has recourse to suction at the meatus urinarius and ostium vaginæ. To conduct or maintain heat, the placenta with the cord intact is placed in a saucepan full of oil and left to boil over a charcoal fire—for many days in the case of prematurely born children and until signs of returning life are manifested in that of stillborn children.

During the remainder of the first day the parturient woman lies down or sits up a while, but she is deprived of rest by the numerous female visitors; from the second day she is at liberty to do either at pleasure. On the fourth day fish enters into the dietary, as well as cakes made of rice flour and jagghery. Uncooked fish is never to be taken to the lying-in apartment, as it is supposed to be hurtful. The leaf of *Piper bitle*, some of the nut of *Areca catechu*, and extract of *Acacia catechu* with a little lime are given to the lying-in woman, to be chewed, a little of the juice being sometimes given to the child. The umbilical cord, which was secured to the abdomen, is now tied to the groins or to the neck. Strings of black thread are tied round the waist, wrists and neck of the child. Lampblack mixed with oil is applied to the sclerotic conjunctivæ of mother and child and to the latter's navel. On the night of the sixth day the mother sits up, taking the child, without a wink of sleep, and is roused immediately if she happens to dose. The friends and neighbors of either sex, possessed of spirits (alcoholic), make merry in the house, singing to the sound of the *batoque*—a drum made out of a barrel-shaped earthen vessel, having two opposite openings, one about three inches in diameter and the other about twelve, the latter being closed with the distended, dried skin of *lacerta iguana*, which is tightly drawn over and secured to it—to drive away the so-called *sotvec* (tetanus?), highly fatal both to mother and child, and which, it is believed, is carried away by the midwife on the next day.

On the seventh day the patient, changing all her clothes but not the binder, shifts to another apartment prepared for her.

On the eighth day a purgative is given and from the tenth, if the woman is all right, she takes a daily bath. All baths are given in the morning, preceded by massage with cocoanut oil, and followed by the

administration of a glass of wine or spirits. Formerly the bath was given from the second day.

During the puerperal period she changes her dress as often as she dreams, the clothes being previously washed, dried and subjected to aromatic vapors from burning incense or flowers of *Lavandula vera*. Those who have no spare clothes wear what they have on, after duly fumigating them.

During the labor, liquor is given but no food except rice congee, if needed. After-pains are treated with fomentations and carminatives, such as ginger, onions, etc. Any wound in the perinæum is treated by the application of irritants in the second week. Poor people reassume the household duties after the twelfth day and others keep their room, which always remains closed for a month. The binder is used for five weeks, in the case of the birth of a female child, and longer in that of a male.

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## PORRO'S OPERATION.

BY W. H. HASKIN, M. D., NEW YORK.

On February 10, 1893, I was asked to assist Dr. C. von Hoffman at the above operation, and, as the case presented some peculiar points, it may be interesting to those interested in obstetrical surgery.

Two years previous Dr. Henry Gibbons, Jr., had performed Cæsarean section and saved the mother's life, the child dying shortly after removal.

Having been called by her attending physician after the woman was in pain, when we arrived the os uteri was already moderately distended. There was no nurse, nor, in fact, any convenience in the house, so the wash boiler was first scrubbed with carbolic acid and then used to prepare boiling water and at the same time to sterilize all the instruments, ligatures, and dressings to be used. The kitchen table was prepared for the patient, and, after cleansing her body as well as possible, she was put on it and operated upon.

A long incision was made in the median line and carried well up above the umbilicus. Owing to extensive adhesions, the uterus was turned out only after hard work and many ligatures. Sutures were then placed to close the abdominal incision above the uterus, in order to protect the intestines. After placing a strong elastic ligature



around the neck, the incision into the uterus was made, the child extracted, and the ligatures immediately drawn tight. There was no hæmorrhage except that contained in the uterus with its placenta.

It was then decided to remove the uterus and appendages rather than the appendages only, because of the very extensive absorbing surface which would have to be left after the former adhesions were broken through.

Deep silk ligatures were then passed on either side so as to include the uterine and ovarian arteries, together with the abdominal walls. After these were secured the elastic ligature around the neck was removed. Hæmorrhage from the right ovarian artery was controlled by another ligature. The fundus and part of the cervix were then removed with the knife and a conical section taken out of the remaining stump. The remaining cervical canal was touched with pure carbolic, and the exposed surfaces of the cervix were brought together by buried catgut sutures so as to form a small fundus over the cervix. The abdominal cavity was carefully closed around the stump and an antiseptic dressing applied over all.

After six hours it was noticed that there was still some arterial bleeding on the right side, but it was readily stopped by catgut ligature.

Recovery was very rapid, and the temperature did not go over  $101^{\circ}$  F. at any time. All ligatures were removed at the end of eighteen days. The child did well from day of birth, being fed on Mellin's Food.

A letter from Dr. von Hoffman, dated May 26, 1893, says that both child and mother were well and strong, and that the latter had symptoms of changing life.

The following measurements were taken :

Height .....	49 inches.
Ant. sup. spines of the ilei.....	25 centimetres.
Crests of the ilei.....	28 "
Trochanter .....	30 "
External conjugate diam. (Baudeloque) ..	16 "
True conjugate.....	

An interesting circumstance was the discovery of five silver sutures in the uterine wall, which had been placed there at the previous operation. As there was no nurse present, the child was wrapped in a blanket and placed near the fire until the operation was completed. Dr. Kirschoffer administered ether, and boiled water was the only fluid used during the operation.

## ICHTHYOSIS UTERI.\*

BY EMIL RIES, M.D., CHICAGO.

The mucous membrane of the cavity of the uterus is covered by columnar epithelium, which presents different appearances in the corpus and in the cervix. The columnar epithelium is shorter in the body than in the cervix; the nuclei of the epithelium of the body generally lie in the center of the cells; in the cervix they are at the base of the cells. In stained specimens the whole of the protoplasm of the epithelium of the body stains; in the cervix only the protoplasm round the nucleus. Many cells of the mucous membrane of the cervix are so-called goblet cells, and secrete mucus. The cells on the surface of the body are ciliated, and the movement of the cilia is directed toward the os uteri and not toward the tubes, as was formerly believed. Normally, one row only of columnar epithelium covers the mucous membrane. Occasionally between the bases of the full-grown cells are observed small cells, which probably become superficial cells and take the place of the old cells as they are thrown off. All the varieties of epithelium described also cover the surface of benignant tumors which grow from the uterine walls into the uterine cavity, unless these tumors have grown to an enormous size or have undergone degeneration.

All deviations from the condition above described would be considered pathological if it were not necessary to exercise great care in the use of the term "pathological" in an organ in which so many histological processes must be considered normal, which in all other organs would be considered pathological. Absence of the epithelium, for example, on all other mucous membranes is justly termed abnormal; but in the uterus it is observed in the early days of the puerperium, which certainly can not be considered a pathological condition. In the puerperium the new epithelium is furnished by the epithelium of the uterine glands, which, according to my observations (1) made on specimens taken from the living puerpera, reaches the surface about the ninth day after delivery.

Absence of the epithelium is also observed in very rare cases of puerperal atrophy, some of which I have had the privilege to observe (3).

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\* Read by invitation before the Chicago Gynecological Society, September 20, 1895.

In pyometra the whole mucous membrane of the uterus is sometimes replaced by granular tissue and all epithelium has perished. I do not mention pregnancy as an instance of the absence of the epithelium, because modern researches have proved that the syncytium of the chorionic villi is nothing but the former epithelium of the surface of the uterus. The epithelium is not to any considerable extent absent during menstruation. Recent researches (2) have proved this in spite of the old theories of menstruation.

Change in form of the epithelium is observed in cases of hydro-metra and hæmatometra, because the mucous surface of the epithelium is stretched and consequently flattened out. The same change of form may take place in extra-uterine pregnancy or in pregnancy in one horn of a double uterus, where the mucous membrane of the empty cavity is transformed into a decidua. In these cases the epithelium of the surface has been said by some authors to be absent altogether; but Gottschalk published a case of extra-uterine pregnancy where he could see the epithelium quite distinctly, although it was flattened out so much that it had the appearance of endothelium rather than of columnar epithelium. I can confirm his observation by one of my own, which I made on the decidua delivered out of the empty horn of a double uterus, one horn of which had been pregnant.

In all the conditions above enumerated there is never more than one layer of epithelial cells on the surface of the mucous membrane. A condition, however, exists where the cavity of the uterus is lined with stratified epithelium perfectly similar to the epithelial covering of the skin or the vagina.

This very remarkable observation was first mentioned by Gautier at the international medical convention at Geneva, and was first fully described by Zeller (4) in 1884 under the name of ichthyosis or psoriasis uteri. Zeller's paper has long been treated lightly—even with decided doubt as to its correctness—but it has gained a very great importance since cases of squamous epithelioma have been observed in the cavity of the uterus. According to generally accepted ideas on the formation of malignant growths, we could not expect to find in the uterine cavity any other kind of cancer than that composed of and originating from columnar epithelium. Since Piering (5), however, first published a case of cancrioid of the body of the uterus in 1887, the number of cases has so much increased that gynæcologists have had to attribute very grave importance to the occurrence of stratified epithelium on the mucous membrane of the uterus.

Before entering into the discussion of these rare observations, I wish to mention that the literature contains records of three different conditions under which stratified epithelium is observed at places where we expect to find the normal columnar epithelium of the cavity of the uterus. I possess specimens which show two of these conditions—one, inversion of the uterus; the other, cervical polypi extending into the vagina. In a case of chronic inversion of the uterus I made a small excision of the mucous membrane of the uterus, and to my astonishment found it covered with stratified epithelium. The basal cells of this were cylindrical; then came several layers of many-shaped cells, among them some prickle cells, and on top of them one or several layers of perfectly flat cells, all of which contained well-stained nuclei. There were only very few glands left below the stratified epithelium, but they were not dilated. During menstruation I made a second excision, and found that the uterus had not thrown off the stratified epithelium, but that there were small hæmorrhages underneath the epithelial covering, which in some places had broken small openings through the epithelial lining, and had thus been discharged.

I have also several specimens of cervical polypi, the lower apex of which had been lying in the vagina, and invariably this part of the polypi was covered with stratified epithelium, consisting again of one basal cylindrical row and several rows of multangular cells, the surface being formed by one or two layers of perfectly flat cells. Only the surface of the polypi was covered by this squamous epithelium; the glands and the surface of the pedicle of the polypus showed the normal high columnar epithelium peculiar to the cervix, as described above. Williams, in his *Harveian Lectures for 1886 on Cancer of the Uterus* (6), describes a case of cervical polypus the lower end of which was capped by the same pavement epithelium at its lower apex as in the cases mentioned above. But in his case the pavement epithelium had sent processes into the substance of the growth and into some of the glands. He therefore calls the case one of squamous epithelioma; but it seems to me that he has not given sufficient evidence for this diagnosis. Judging from this illustration (Plate XI), I should venture to disagree with him; an oblique section of the surface of the polypus may have caused a deceptive appearance of carcinomatous strings or cords.

Pavement epithelium has been observed by Zeller (4), Küstner (8), Ruge (7), and others on cervical polypi, and by Ruge (7) and Gebhard (2) in inversion of the uterus. Ruge (7) mentions cases of

large procidentia of the uterus with deep tears and ectropium of the cervix in which he observed stratified epithelium in the lower part of the uterine cavity. This is not astonishing, as this condition is practically nothing but a partial inversion of the uterus.

In all of the conditions just described the mucous membrane of the uterus is in contact with the vagina or the vulva. We may speak of a sort of infection with pavement epithelium brought about by contact with organs covered with the same variety of epithelium. It is impossible at present to determine whether air may exercise some chemical influence, inducing metamorphosis of columnar into stratified epithelium. Veit calls this process "epidermidalization"; Zeller thinks it belongs to the condition described by him as "ichthyosis uteri."

The observations so far recorded are confirmed by all authors who have treated of this subject, but the condition described by Zeller as "ichthyosis uteri" has met with very great distrust regarding the cavity of the uterus in cases where neither inversion nor polypus existed. It is therefore necessary to consider Zeller's report a little more fully.

Zeller (4) has examined fifty-four cases of chronic endometritis, fifty-one of them in persons less than fifty years old. In all of these cases he found the surface of the mucous membrane of the uterine cavity covered partly or totally with stratified epithelium resembling that of the skin or vagina. The most superficial cells could be stained yellow by picric acid; generally they contained nuclei; in very rare cases they did not. The number of layers of flat cells was from one to four. Below this stratified epithelium he always found the glands increased in size and number. The stratified epithelium sometimes filled the mouth of the glands and covered their columnar epithelium. In all cases the stratified epithelium of the surface formed papillæ. In some cases Zeller repeated his observations several times on the same patient, and then he found that, for instance, the first and third observations revealed stratified epithelium, while the second and fourth showed the normal columnar epithelium. The best specimens were found in cases which had been treated for a long time with intra-uterine injections, cauterization, etc., and Zeller mentions especially that he obtained very good specimens a few days after intra-uterine injection of tincture of iodine.

The results thus stated by Zeller are in direct contradiction with my experience and that of all other microscopists. I have examined Zeller's paper very carefully and have tried to find out if there could



be a misunderstanding or a mistake, but, barring unimportant contradictions in regard to the number of cases observed, and to the occurrence of prickly cells, I could discover no inconsistencies in his essay.

I have examined microscopically more than two hundred cases of uterine scrapings, but in only one of them I found the condition described by Zeller. I also found it in a case of cancer of the cervix when I examined the apparently normal mucous membrane of the body.

The latter case showed the stratified epithelium as a level covering of the cavity of the uterus; there were no processes of the epithelium penetrating into the subjacent tissue. I could discover no traces of uterine glands. I consider, therefore, this case as an instance of simple ichthyosis uteri, coexisting with cancer of the cervix. The other case which I observed was very interesting, and I wish to dwell upon it a little longer.

Mrs. T., sixty years old, had had several children. Menstruation had ceased about the fiftieth year. For some weeks she had noticed moderate hæmorrhages and a slight discharge. On examination, I found the patient anæmic and cachectic; the organs of circulation and nutrition were normal; the uterus was small, anteverted, the os closed; slight discharge of a bloody fluid; no pains. After dilatation I scraped out the uterus, but could only get very few and very small portions of tissue. On examining them, I found (Fig. 1) part of them were composed of nothing but a thick layer of stratified epithelium; another part contained deeper layers of the mucous membrane of the uterus, and even small particles of the muscular coat of the uterus. The deeper layer of the mucous membrane contained some sinuous glands, the epithelium of which was columnar, but in several places there was more than one row of columnar epithelium. In one place a string of stratified epithelium penetrated through the mucous membrane into the muscular coat of the uterus, and the epithelial cells were in immediate contact with the muscle cells. Consequently there could be no doubt that there was cancer of the cavity of the uterus which had penetrated into the muscular wall and which, contrary to the usual forms of cancer of the cavity of the uterus, originated in squamous epithelium, not in columnar epithelium. As the vaginal portion had a perfectly normal appearance, the possibility of a metastasis of a cancrroid of the portio was excluded. The cancrroid of the cavity must therefore have grown from a pavement epithelium newly formed on the mucous membrane of the cavity. As the specimens did not show this distinctly, I scraped the lower part of the cavity again a few days

after the first scraping. Again I could remove only very little tissue, but fortunately this small particle contained the explanation I was



FIG. 1.—Cancer of the body. Case T.

looking for. In this particle (Fig. 2) I saw the mucous membrane of the cervix, distinctly recognizable by the epithelium of the numerous glands contained in the section; this epithelium consisted of the typical columnar cells described above. The surface of this mucous membrane was covered by a thick layer of stratified epithelium. The basal cells of it were cylindrical; the surface was formed by flat cells, and between these layers were eight to ten rows of many-shaped cells. The nuclei of these cells, especially of the many-shaped cells, very frequently contained karyokinetic figures, but none of them presented irregular shapes. Between the many-shaped cells there were several

irregular openings filled with blood cells. On careful examination and comparison of the basis of the epithelial layer, these openings proved to be oblique sections through thin papillæ with blood-vessels, which reached high up into the epithelial layers. A most remarkable feature was that a gland, immediately underlying the epithelium, was almost filled up with stratified epithelium on the side next to the sur-

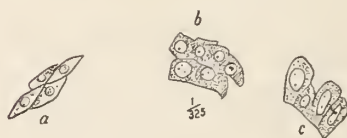
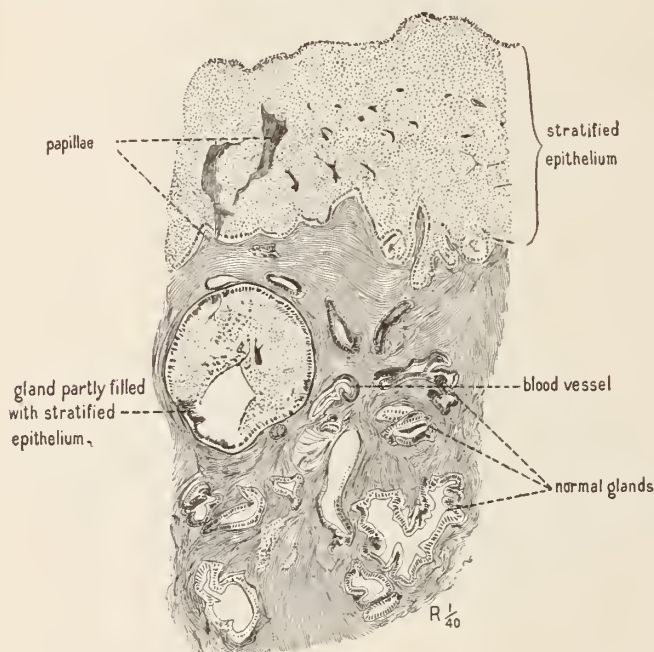


FIG. 2.—Ichthyosis uteri. Case T.

face. The resemblance of this picture with the histological appearance of healing erosions is most striking. The other side of the gland showed cylindrical epithelium arranged sometimes in two or three rows. The borders of the gland were well defined. The other glands

showed nothing abnormal. I believe that the resemblance of this specimen to one of Zeller's sketches, the normal condition of all glands but one, and the restriction of the stratified epithelium to one side of this gland, compel us to consider this specimen genuine ichthyosis. We are therefore entitled to the theory that the cavity of this uterus was lined throughout with stratified epithelium, which in some places was no longer confined to the surface, but had penetrated into the wall of the uterus, thus producing a real squamous epithelioma of the body of the uterus.

In the specimen which I have described first and which was taken from the cavity of the uterus with cancer of the cervix there were no traces of malignant growth originating from the squamous epithelium of the cavity.

If we follow Gebhard's definition (9) we must consider the two cases of ichthyosis which I have described to be essentially different. Gebhard's hypothesis is that there are two different series of cases with stratified epithelium: the one kind always remains limited to the surface—simple ichthyosis; the other kind has the tendency to penetrate into the subjacent tissue and form cancerous nests. Until now we have no possible means to discern these two different kinds if we do not see the terminal stages of the process. Pfannenstiel's definition (10) is therefore more valuable for practical purposes. Pfannenstiel says: "Not every case of stratified epithelium in the cavity of the uterus should be considered indicative of carcinoma, but the stratified epithelium, found in the cases of squamous epithelioma of the cavity of the uterus, must be considered the preliminary stage of the cancer, just as a glandular hypertrophy of the mucous membrane of the uterus, non-malignant in itself, can be the preliminary stage of adeno-carcinoma."

I would therefore lay down the following rules:

The clinical symptoms of ichthyosis are not sufficiently clear to enable us to found a diagnosis on them. Discharge and light hæmorrhage, the usual symptoms of ichthyosis, can as well be produced by cancer of the body and several other conditions as by ichthyosis.

If we scrape out a uterus and examine the scrapings microscopically, we may only find the stratified epithelium. We are then not enabled to give a diagnosis of cancer or of ichthyosis, but must reserve our diagnosis if the epithelium itself does not contain some further clues as to the nature of the disease. In a case which I observed I found no layer below the epithelium; still, I was able to give the diagnosis of cancer, because in the middle of the stratified epithelium I

discovered distinct cancerous pearls (Fig. 3). In other cases irregular karyokinetic figures may strengthen the suspicion of cancer so far as to justify hysterectomy. Pyometra has been observed in quite a considerable number of squamous epithelioma of the body of the uterus,

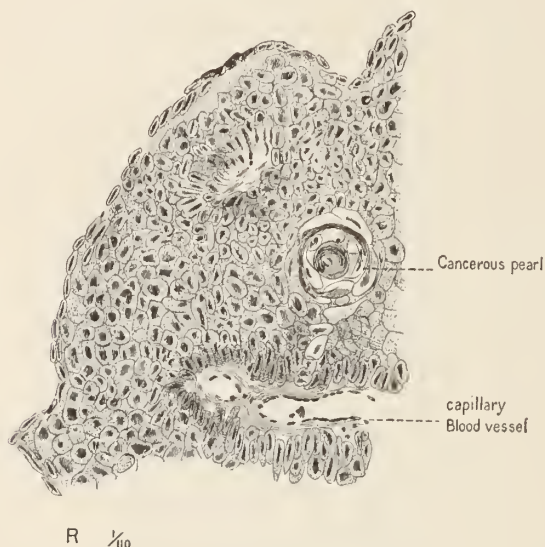


FIG. 3.

and this pathological condition in itself may render hysterectomy necessary if microscopical examination does not enable us to diagnose cancer.

In other cases the curette procures sufficient tissue for a precise diagnosis. If we find the stratified epithelium limited to the surface, or penetrating only into the mouth of the glands, the diagnosis must be ichthyosis. We must, however, always frequently observe these patients for some time, because we do not know if the ichthyosis will not undergo metamorphosis into cancer.

If, on the contrary, the microscope reveals cords of pavement epithelium penetrating into the tissues of the mucous membrane, or even into the muscular wall of the uterus, the diagnosis must be one of cancer, and speedy removal of the uterus is indicated.

Squamous epithelioma of the uterus does not necessarily originate in previous ichthyosis of the uterus, but squamous epithelioma of the cervix may spread over the mucous membrane of the body, as in cases



described by Benckiser (11) and Hofmeier (12), or the cancrroid of the body may be a metastasis of a cancrroid of the cervix, as in a case described by Pfannenstiel (10).

To the cases originating in the cavity itself, as described by Piering (5), Gebhard (9), Löhlein (13), Flaischlen (14), Emanuel (15), I have added here the two cases described above. By the connection established by recent researches between cancrroid of the body and ichthyosis, the latter has gained an importance formerly unthought of. The subject deserves the full attention of the microscopist as well as the gynæcologist, and tends to show again that the latter can not do full justice to his specialty if he is not also a microscopist.

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RELiance BUILDING.

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## SUPPURATIVE PELVIC PERITONITIS: REPORT OF A CASE.\*

BY H. G. ANDERSON, M. D., NEW YORK.

The case which I bring to your attention to-night, and which I hope may serve as the text for valuable discussion on certain mooted questions of procedure, is that of a woman aged thirty, married five years, never pregnant.

The first menstruation occurred at the age of fourteen and was regular until two years before marriage, when it began to be profuse and of seven or eight days' duration. About one year before marriage she had an attack of peritonitis following an unusually painful menstrual period.

After marriage, owing to the change from an active to an indolent life, she grew very fleshy. To reduce this she began the excessive use of vapor and other baths followed by severe exercise in the form of long walks.

This was continued for two years, during which time she had two attacks of pelvic peritonitis, occurring each time after a Turkish bath taken during the menstrual period.

She placed herself under treatment for a constant pain in the right side of the pelvis, dating from the last attack of peritonitis.

The uterus was forward and immovable. There was some induration in each broad ligament. Treatment improved this condition somewhat until, owing to imprudence during menstruation, she began to have acute pelvic pain, and tenderness over right side of the lower abdomen; temperature about 102° F. After a few days a swelling could be felt high in this side of the pelvis extending above the pelvic brim. Owing to the absence of bowel symptoms, the probability of appendicitis was excluded. There was a severe chill followed by a temperature of 104° F. Under ether anæsthesia this tumor could be distinctly felt through the vagina but did not bulge into that passage.

An incision was made posterior to the uterus, and by the trocar several ounces of pus were evacuated. After this the temperature fell to 101° or 102° F., but not below that point. This continued for two weeks, when there was another and more severe chill followed by

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\* Read before the Woman's Hospital Society, December 10, 1895.

a temperature of  $105^{\circ}$ . The pulse was very weak and rapid; the urine was passed involuntarily; vomiting was severe and frequent. Vaginal touch was excessively painful. The condition was one bordering on collapse.

Under chloroform anæsthesia a tumor was felt high up on the left side. This was tense and not movable. With the aspirator there was drawn from this mass nine ounces of serous fluid, somewhat blood-stained. The opening was enlarged and gauze drainage inserted. Stimulating enemata and hypodermic injections were freely given and the patient rallied slowly from the shock.

Twenty-four hours later the condition was much improved, but the temperature was still above  $104^{\circ}$ . Chloroform was again given and a finger passed into the cyst sac, at the upper limit of which a bulging could be indistinctly felt. A trocar was passed along the finger through the cyst wall and into the mass beyond, evacuating about four ounces of offensive pus. A rubber drainage-tube was inserted and the cavity irrigated with peroxide of hydrogen—one fourth strength.

After this the temperature rapidly fell to normal. The control of the bladder was restored, and the general condition rapidly improved.

Eight weeks after this operation a discharge of offensive pus and blood occurred, and pus appeared in the urine. The face, hands, and feet were swollen, and the amount of urine greatly diminished. The temperature rose to  $102^{\circ}$ . Examination of urine showed one fourth of one per cent. of albumin, few renal and bladder epithelial cells, unaltered pus and blood cells in abundance, strongly acid.

A sinus was found to exist at the site of the original incision. This was dilated, a small amount of pus was evacuated, and the cavity irrigated with peroxide.

For a week after pus had ceased to exist in the sinus there was still pus in the urine. This, however, was not constant. I drew the urine by catheter, then irrigated the bladder with boric-acid solution. A few moments later the patient passed about three ounces of clear pus. Both specimens were examined. The first clear with no pus; the second composed almost entirely of unaltered pus and blood cells. At no time was there urine present in the discharge from the abscess, showing there was no communication between this cavity and the bladder. The unaltered pus and blood cells showed they were of cystic rather than renal origin. The origin of the pus is obscure, but may have been in some smaller cavity which was not broken up by the finger. From this time recovery was uninterrupted.

The special points of interest in this case are :

1. Recurrent attacks of pelvic peritonitis, the last going on to suppuration.

2. The occurrence of a serous cyst, separate and distinct from the abscess cavity, yet apparently originating at the same time and from the same cause.

3. The interrupted occurrence of pus in the bladder without evidence of cystitis or nephritis, or of communication with the abscess cavity.

In the non-puerperal state, pus, outside of the Fallopian tube or the ovary, is a comparatively infrequent condition. Hence a glance at the pathological steps of the abscess formation may not be amiss.

There first occur the phenomena of any inflammation ; hyperæmia and dryness of the peritonæum, with exfoliation of its epithelial layer, which changes its usual smooth, glistening surface to a dull reddish appearance. Next there is an exudation of serum and fibrin, or serum, fibrin, and pus in varying proportions.

If the exudation be chiefly of serum, it may become encysted by a fibrinous exudation and may be reabsorbed.

The exudation of fibrin produces abundant false membrane and gives rise to adhesions between coils of intestine and between the uterus and neighboring organs and pelvic wall. After recovery these adhesions become thin and stretched, but probably do not disappear.

In a subacute or recurrent peritonitis the likelihood of suppuration increases with each attack.

Suppuration may be present from the beginning or may be a secondary event.

The inflammatory process forms adhesions and serum-filled spaces which may coalesce, and by the addition of irritating matter, most frequently from the Fallopian tube, suppuration occurs. The co-existence of the cyst and abscess in the case reported would seem to be thus explained.

As to the treatment of these collections of fluid, the general surgical rule that where there is pus evacuate it, applies here with equal force, the question being as to method.

When the pus is situated low in the pelvis, having origin in the cellular tissue, it is generally agreed that vaginal incision and drainage is the only procedure. The cases of doubt are those in which the pus, as in the case reported, is situated high in the pelvis, extending above the brim.

In favor of the abdominal method it is urged that a more radical

operation may be done ; that the field of operation is in sight, and adhesions may be more intelligently broken up ; that not only is the pus removed, but also the containing walls and pyogenic membrane—the source of the suppuration—which, if left, would invite a recurrence of the trouble.

By the vaginal method, however, with least shock to the patient, we can evacuate the pus or serum, wash out the cavity with peroxide and drain. If necessary, at some future time we can open the abdomen and remove the sac without the risk of infection that a primary section would have involved.

If fluctuation can be detected through the vaginal walls, or where there is likelihood of the pelvic organs being fused together, then vaginal incision is indicated and promises good results.

This more conservative method, too, may result in saving useful appendages.

Other advantages of the vaginal method that may be mentioned are : 1. It leaves no scar. 2. There is no danger of a subsequent hernia. 3. The abdominal viscera are not handled. 4. Patients may submit to this who would refuse the abdominal section. 5. It may be used when the intestinal adhesions are so firm that to remove the diseased structures would probably result fatally.

The removal of the uterus in cases of extensive suppuration, especially in those cases in which the endometrium is the seat of purulent inflammation, is attended with less shock than by the abdominal operation and leaves the parts in condition for perfect drainage. However, it may still be a question if curettage of the uterus with incision and drainage of the abscess will not produce as satisfactory results.

In conclusion, then, I would say that while the ideal operation in suppurative disease of the pelvic peritonæum may be cœliotomy with entire removal of diseased structures, yet the best interest of the patient is subserved by vaginal incision and drainage, leaving the question of an abdominal section for the subsequent development of the case to decide.

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INDICATIONS OF TREATMENT IN THE CASE OF  
UTERINE MYOMATA.\*

BY GEORGE T. HARRISON, M. D., NEW YORK.

It is my purpose in this introductory paper to define, with as much precision as possible, the indications of treatment for uterine myomata under the varying conditions which they present. In order to this I would propound the following queries :

1. In the case of uterine myomata, when is a symptomatic and expectant plan of treatment indicated ?
2. What are the conditions that demand radical therapeutical measures—in other words, surgical intervention ?
3. The indication being a radical operation, when should vaginal total extirpation be the method adopted, and when abdominal ?
4. Under what circumstances is supravaginal amputation to be preferred to total extirpation ?
5. When is enucleation, *morcellement*, or Emmet's traction method *per vaginam* demanded ?

In dealing with this morbid condition surgically, the operative technique has, in the past few years, been so greatly improved that the tendency is to embrace within the scope of surgical intervention a continually increasing number of cases which were formerly excluded from this domain. This tendency, too, appears to have reason on its side ; for it must be borne in mind that every uterine myoma is a neoplasm, and why should it not be removed, it may be argued, just as we do elsewhere in the body—as we do the ovary, for example, when the seat of a new formation. In the first place, it may be urged, How can we be absolutely sure that our diagnosis is correct ? What is diagnosed as a *myoma* may prove to be a *sarcoma*. Again, no one can say beforehand, with any degree of certainty, that a myoma will not grow to greater proportions and become a source of danger to its possessor ; it is easy to understand, then, that an operation performed in the early stages of its development might be an easy matter, but later on exceedingly hazardous. We know also that degenerative processes occur at times in myomata, such as calcification, suppuration, gangrene, etc., which may bring great risk to the patient. One such degenerative change, which greatly in-

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\* Read before the New York Obstetrical Society, December 3, 1895.

creases the difficulty of diagnosis and may involve serious consequences, is general œdematous infiltration. The œdema is the consequence of stasis occasioned by the formation of *thrombi*, originating spontaneously in anæmic subjects or following upon therapeutical procedures. It has been observed repeatedly, after the Apostoli treatment, it may be remarked in passing. After a wound, infection may take place with putrefactive bacteria, or with staphylococci, or with streptococci, resulting in *thrombosis*, *œdematous infiltration*, *suppuration*, *necrosis*, or *pyæmia*. The endometrium, as is well known, exhibits a condition of chronic inflammation or hypertrophy, especially in the case of intramural tumors. *Menorrhagia* or *metrorrhagia* are consequent upon this condition, and in the event of invasion of staphylococci, pus tubes may complicate the case. When the growing tumor is detained in the pelvis it may cause from pressure disturbances in the functions of the neighboring organs, especially the bladder. When it develops between the folds of the broad ligament it may dislocate the ureter of the corresponding side and so obstruct it as to cause hydronephrosis. Lastly, the degeneration into *sarcoma* has been observed, and even rarely into *carcinoma*. In view of these possibilities, unfavorably affecting the prognosis, it would seem that a strict logical deduction from the premises would demand the ablation of the offending organ. As Küstner,\* however, justly remarks, "this radical standpoint to subject all myomata to operative treatment will, at all events, never find place in a science which makes it a problem to help the suffering organism as much as possible according to the standard of its individuality." Virchow† admirably expresses it when he says "the myomata in itself is a benignant entirely local formation, which brings no other danger to the body than that which is produced by its effects and changes." It can not be denied that the preponderating majority of women affected with myomata, if subjected to a symptomatic treatment, attain to the menopause, when the dangerous symptoms disappear gradually, as a rule. To a large degree the environments of the patient must be taken into consideration in discussing the question of a radical operation. A woman who has to earn her bread by daily toil can not afford to submit to a long continued course of symptomatic treatment which her sister, in better circumstances, could choose without inconvenience. In a word, it is the individual that must be subjected to treatment, and not merely the disease. The question might be thus put in each individual case: Are the

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\* *Grundzüge der Gynäkologie.*

† *Die Krankhaften Geschwülste.*

dangers and annoyances incident to the myoma of such a grave character as to outweigh the dangers arising from operative intervention, together with such drawbacks as appertain to the mutilation? It is a well-attested fact that the removal of the uterus and the annexa, in young women is at times attended by such psychical disturbance as to make it a question if it had not been better to have let the patient remain as she was. Under these circumstances it might be well to remove the uterus when the operation seems imperatively indicated and leave the ovaries intact. I have now under my care a patient affected with uterine myoma who may be considered a type of a large class. I have observed the case for seventeen years. Within this period I have seen the tumor take its origin in small beginnings, grow after emerging from the pelvis, assume huge proportions, ascending above the umbilicus, and then, after the menopause had been attained, gradually undergo retrogressive changes, until now it is an insignificant enlargement. Meanwhile the physical condition of the patient is excellent, her fine complexion and robust appearance impressing one strongly with the exuberance of her health. The chief symptoms which called for treatment from time to time in this case were menorrhagia and metrorrhagia, and they were controlled by dilatation with laminaria tents followed by injections with iodine. I have had excellent results with this mode of treatment for such conditions. Latterly I have employed dilatation, curettage, and packing with iodoform gauze with gratifying results, as a rule. It is doubtful if the patient would be as well if I had performed a radical operation, as at one time I thought of doing, when the symptoms seemed to demand it.

*Myomectomy* I believe to be indicated under the following conditions: 1. The persistent growth of a tumor, if certainly demonstrated and occurring in a woman rather young, unconditionally demands a radical operation. In the case of subserous myomata, even if they begin to grow when the patient is near the menopause, the indication is still a radical surgical procedure, as it may be assumed that they are nourished by their adhesions, and consequently that they will continue to grow during and after the climacteric. If the myoma occupies the pelvis, and by its growth causes phenomena of incarceration on the part of the bladder, its removal is indicated if it can not be replaced.

2. Profuse hæmorrhages, which cause intense anæmia and perceptibly exhaust the patient, furnish an indication especially when ordinary therapeutical measures prove inefficient.

3. A radical operation is indicated when the pains and annoy-

ances that accompany the growing tumor destroy all pleasure in existence and render the patient incapable of doing any work.

4. In a certain class of cases, in consequence of the presence of the myoma, ascites is evoked, which can only be relieved by the extirpation of the growth. In these circumstances *myomectomy* is unconditionally indicated.

For the method of vaginal total extirpation, cases of subserous and intramural myomata not exceeding a child's head in size should be reserved. For larger myomata, laparo-myomectomy is indicated. The fact that the after-treatment is so much more simple after total extirpation than after supravaginal amputation, and that the patient's condition is so much better, and further that the healing process proceeds more smoothly and with so few complications, makes it the preferable operation. Only when the portio and cervix are very small, or it is important to save time, is amputation the preferable operation. When submucous myomata have passed through the cervix and attained the vagina, the removal by scissors, using Emmet's method of traction, is usually not difficult, as the tumor is already more or less pedunculated. The same thing happens when the myoma is still in the cervix. When the tumor is quite large and has a broad base, it may be necessary to employ *enucleation*, *morcelement*, and *traction*. A necessary condition is that the cervix should be well dilated. Instead of the slow method of dilatation by laminaria or tupelo tents, it is better to incise the cervix, preferably after the manner of Fritsch, by incising the posterior lip up to the internal os. In this way the entire cavity may be felt, and our manipulations much facilitated. These methods are contraindicated in interstitial tumors of large size, and even in submucous myomata when the base is very broad.

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## MENORRHALGIA AND ITS RATIONAL TREATMENT.\*

BY G. BETTON MASSEY, M. D., PHILADELPHIA.

In a paper read before this Society in the winter of 1888 I suggested the term *Menorrhagia* as a preferable one to *Dysmenorrhœa* in designating the symptomatic condition in which menstrual pain is the

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\* Read before the Philadelphia Obstetrical Society, January 2, 1896.

chief feature. The term *menorrhagia* is therefore used in this paper as synonymous with the more widely used term *dysmenorrhœa*. It is preferred because it involves no theory of mechanical difficulty so inseparably connected with the former term.

That menstrual pain is rarely if ever associated with obstruction of the flow is more definitely determined to-day than ever. Of those who still maintain the truth of this discredited theory, or who, without considering the pathology of the condition, continue to employ dilatation as a remedy, I would ask proof of their theory in the following details :

1. Have they met with a case of ordinary menstrual pain in a young woman in which an accumulation of the menstrual fluid occurred above the alleged stricture?

2. Have they not met with cases of artificial stenosis from a trachelorrhaphy greater than the usual idiopathic stenosis, without the distinctive features of *menorrhspasm* and without pain?

3. Have they passed a sound during the height of the suffering in any of these cases of pain and cramps without finding the uterus more patulous than between periods?

There can be but one conclusion from a series of facts thus elicited—namely, that it is irrational to regard *menorrhagia* as due to obstruction in any sense, even though a spasm of the internal os can be produced by the sound between periods, for even this spasmodic contraction will usually be found wanting during the period itself.

It is clear, in the light of all the facts, that *menorrhagia* is merely the expression in pain of an attempted functionation of a lame set of organs, the pain often taking the form of a *menorrhspasm*. The causes of this lame performance of an important function may be in the nervous system exclusively—the neuropathic diathesis—though it is usual to find some chronic inflammatory condition of the uterus or ovaries as the exciting agency.

The rational treatment of the affection calls for a correction of the faulty condition of the nervous system, which is often an actual *neurasthenia*, and where the local fault is very slight this will be quite sufficient. But if there is distinct physical trouble about the uterus and its associated organs, it is extremely illogical to depend upon general curative measures alone. The case will be a costly failure. In nearly nine tenths of the cases occurring in single women an *endometritis* is the exciting cause, for of thirty-two cases of which the writer has preserved careful notes, at least twenty-eight showed marked signs of this condition.



These thirty-two cases presented other points of interest when studied collectively. For instance, in only four of them was any difficulty encountered in inserting a sound of ordinary caliber, and in each of these I succeeded in fully inserting the sound-shaped electrode after several partial insertions and negative applications to the cavity as far as inserted, and in no instance was it necessary to dilate either forcibly or with dilating electrodes after Fry's method. At no time has it been necessary to use force to insert the electrode, and in no instance was a tenaculum or Volsella forceps used to fix the os while the electrode was slipped in.

It would seem, indeed, that the most important enumeration in connection with these cases was of the things I did not do. Of the things accomplished, however, it may be said that I did insert electrodes into all these cases of alleged narrow and obstructed uterine canals without forcing, stretching, or otherwise wounding the structures of the uterus, and that all of the cases, with the exception of four, were cured of the trouble. Neither of these four excepted cases were instances of difficult insertion, and the results were indefinite simply because of insufficient treatment.

Of the thirty-two cases five had been dilated by other physicians ineffectually before coming under my care, most of these having been dilated most thoroughly under anæsthesia on more than one occasion.

The purpose of the electric treatment is therefore not dilatation, as has been incorrectly assumed by some physicians, but the cure of the congestion, inflammation, or malnutrition on which the condition depends.

In most cases the rigid, sound-shaped electrode must be used as a negative pole within the uterus, with currents varying from fifteen to forty milliampères; though in patulous cases an elastic, cotton-covered electrode is preferable. These applications should be made twice a week, interspersed with vaginal applications of both currents if there be tenderness or congestion in either tubal region, and they should extend over two intermenstrual periods, as a rule, to insure permanent results. Should a pelvic neurosis be the only condition present, with or without lack of development or malassimilation, the intra-uterine treatment should be omitted, and reliance be placed on the vaginal application of both currents as the special electrical feature of the treatment. For neurasthenic symptoms the general galvanic stimulation should be added with the other features of the rest-cure methods.

*Tabulated Statement of Thirty-two Cases of Menorrhagia treated by Electricity.*

No.	Age.	Duration of disease.	Presence of discharges.	Degree of narrowing of canal.	Previous treatment.	Result of electrical treatment.
1	Yrs. 22	Since puberty.	Moderate leucorrhœa.	Insertion easy.	.....	Cured.
2	24	Since puberty.	None.	Insertion easy.	.....	Cured.
3	21	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
4	19	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
5	25	Five years.	Leucorrhœa.	Insertion easy.	Dilatation.	Improved.
6	24	Since puberty.	Leucorrhœa.	Insertion easy.	.....	One treatment only.
7	23	Since puberty.	Leucorrhœa.	Insertion difficult.	.....	Cured.
8	24	Since puberty.	Leucorrhœa.	Insertion difficult.	.....	Cured.
9	25	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
10	26	One year.	Leucorrhœa.	Insertion easy.	.....	Cured.
11	27	Four years.	Leucorrhœa.	Insertion easy.	.....	Cured.
12	22	Two years.	Leucorrhœa.	Insertion easy.	Dilatation.	Cured.
13	21	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
14	38	Seven years.	Leucorrhœa.	Insertion easy.	.....	Cured.
15	22	Since puberty.	Leucorrhœa.	Insertion difficult.	.....	Cured.
16	22	One year.	Leucorrhœa.	Insertion easy.	.....	Improved.
17	26	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
18	27	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
19	21	Since puberty.	Leucorrhœa.	Insertion difficult.	.....	Cured.
20	26	Since puberty.	Leucorrhœa.	Insertion difficult.	.....	Cured.
21	25	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
22	23	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
23	21	Since puberty.	Slight leucorrhœa.	Insertion easy.	.....	Cured.
24	27	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
25	39	Since puberty.	Leucorrhœa.	Insertion easy.	Dilatation.	Cured.
26	25	Seven years.	None.	Insertion easy.	.....	Improvem't.
27	21	Seven months.	Leucorrhœa.	Insertion easy.	.....	Cured.
28	31	Since puberty.	Leucorrhœa.	Insertion easy.	Dilatation.	Cured.
29	27	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
30	25	Since puberty.	Leucorrhœa.	Insertion easy.	.....	Cured.
31	20	Since puberty.	Leucorrhœa.	Insertion easy.	Dilatation.	Cured.
32	22	Four years.	Leucorrhœa.	Insertion easy.	.....	Cured.

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## EDITORIAL.

### "DOG EAT DOG" AND THE ETHICS OF THE PROFESSION.

The constant and noblest distinguishing trait of the medical profession, a trait venerable in its usage even in the days of historical antiquity, has been twofold: We give freely to the poor the best we have to give and, having ourselves received our knowledge and our skill from others, from generation to generation, without price, we also give in our turn to our professional brothers, freely as we have received, each man adding thereto whatever of interest he has been able to derive from his use of the common fund of knowledge.

This is a very fine thing. It is our badge of honor, our safeguard to the respect of the community. For, especially in these days of "the universal price," when the rule of commercial value is used to measure all things—noble and ignoble, when "dog eat dog" is the accepted principle of the fierce struggle for existence, we physicians still maintain the rights of charity over those of self-interest, of the equal rights of common professional brotherhood as opposed to individual advantage.

The evident and most practical example of the latter mark is the attitude of one physician, in his professional character, toward a brother practitioner and, by way of corollary, toward those who are dependent upon the latter for their support. It is not by favor but by right that one

physician or his immediate family has felt that he could seek the professional services of another physician without pecuniary compensation. This is not merely fine sentiment and generosity, it is, above all, justice. No physician has evolved his knowledge from his inner consciousness or by his own efforts; all that he knows and all that he can accomplish are but the application of laws and principles freely left to him by countless generations of medical men, who have passed on to him not only the heritage which they themselves received but everything beside, which their own individual effort was able to add to the common store. Take the greatest discoveries, those of most practical use, of our own times, could they have been possible without this unselfish heritage? What would our brilliant surgeons, our specialists, have accomplished, had they not been enthusiastically taught the use and misuse of the scalpel, the scissors, the ligature? And what are the novel and epoch-making use, to which any individual may put these instruments, but the practical application of the knowledge he has received from others, as to their potential capacity, and the stimulus thus given to his imagination and his effort to find new applications of old principles? Even take the example of the most original theory of our own day—the *germ theory of disease*, what is this but the final conclusion to premises which were suggested, were announced, were formulated, in the teachings of hundreds of medical men who have preceded us? What work of any man can be called “original,” except in its relation to the work of his contemporaries? What work could presume to originality in the reflected light of the Ages? With the discovery of the Sims speculum modern gynæcology was born and plastic work below the pelvic brim became a possibility. Yet, we ourselves have seen an excellent specimen of this instrument among a mass of metal implements, dug out of the ruins of Pompeii, in the National Museum at Naples; while Metzler, of Germany, described his use of a similar instrument in operating for the cure of vesico-vaginal fistula six years, or in 1846, before Sims invented it. The German surgeon could not have seen the Pompeiian collection and it is highly improbable that Dr. Sims, if he ever saw, appreciated the utility of the instrument depicted in Churchill’s book; yet who will deny that the transmitted knowledge of the anatomical, physiological and mechanical laws of the female pelvic outlet, which outlived the knowledge of the Pompeiian speculum, did not directly inspire the rediscovery of the latter by the German surgeon and, again, by Dr. Sims, a few years later? Thus it is evident that what we know and what we are enabled to accomplish are not ours by pre-

scriptive right but belong equally to the whole medical profession ; it is a community of goods not only for us but for all succeeding generations of doctors.

It is not even a paradox to acknowledge, in the same breath with the foregoing statement, that medical students are compelled to pay an annual tuition fee for their medical instruction and that professors at medical colleges are salaried officers. For, according to what rule of trade will any one maintain that the few hundred dollars, which the student thus expends, bear any commensurate relation to the annual income which his diploma and the knowledge for which it stands give him the right to demand in private practice ; or that the pittance which a professor receives even begins to compensate him for the time thus lost to his private affairs ? No, the fees of students rarely more than suffice to pay for the material maintenance of medical institutions ; the knowledge they receive is freely given. The honorarium which the professor receives is but partial payment for the time devoted to the government and advancement of the institution ; his instruction is not paid for.

It is therefore with shame and indignation that we are compelled to recognize a tendency on the part of a certain proportion of our profession, particularly specialists, to charge other doctors and those dependent upon them for surgical attendance. A certain number of cases in which this has been done very recently by well-known surgeons have been brought to our knowledge. We know that this shameful abuse of a trust is not general and we do not believe it ever will be so, but that it can and has been practiced openly by prominent men, in widely-separated parts of this country, should be enough to place the *honorable* members of the profession upon their guard and to make them ready to denounce such methods of sharp dealing and legalized robbery, wherever discovered and by whomsoever practiced.

We do not hesitate to stigmatize such an one as unworthy of his diploma and as an offense to the honorable profession which he disgraces. He has missed his vocation, which is clearly that of horse-dealer or some such "jockeying" trade. Also, highly reprehensible is the medical patient who will not insist upon his rights but submits to such imposition. His duty clearly is to denounce the surgeon who demands of him a fee, in his necessities, to the County Medical Society rather than to pay it and then to talk of it indignantly afterward.

It has nothing to do with the case whether our professional pa-



tients are rich or poor, prominent or obscure, good consultation clients or the reverse ; our motto must always be : *Freely have we received from the profession, to the profession we will freely give.*

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IN MEMORIAM : THOMAS KEITH, M. D.,\*

F. R. C. S. EDIN., LL. D., F. R. S. E.

The subject of this *Memorial* was born at St. Cyrus, Kincardineshire, Scotland, in 1827, and was descended from a family which for several generations had been distinguished in literature and the learned professions. He received his early education in Aberdeen, was apprenticed to James Y. Simpson in 1845 and finally graduated in medicine at the University of Edinburgh in 1848.

He shortly afterward became resident at the Old Royal Infirmary of Edinburgh under Mr. Syme, and later spent two years at Turin, Italy, as Surgeon to the British Embassy at the Court of Sardinia. Here he strongly opposed the prevalent system of bloodletting, as a therapeutic measure, and incurred the enmity of the Italian medical fraternity in consequence. After his return to Edinburgh he settled down to practice with a brother, who survives him, and devoted himself to general work. He gradually drifted into surgery and especially into that portion of it which was then applied to the diseases of women. At that time laparotomy for any cause was an almost fatal procedure, and especially was ovariectomy, of which Clay and Spencer Wells in England were the most noted and persistent advocates, in the worst repute. But like some of our own great gynecologists, this did not deter Keith from doing what he felt was his duty to his patient, in spite of shallow criticism. He performed his first laparotomy in 1862 ; this case recovered and was followed by a series of brilliant successes, which astonished the whole surgical world. He reduced the mortality in this operation—in reality the advance work of all laparotomies upon women—to so great a degree, that it may be truly said of him that he, more than any other man, gave the lasting impetus to abdominal surgery which has led to the great and familiar results of our own day.

In 1877 he adopted the antiseptic system of Lister and reduced his mortality thereby to three per centum. At this time he reported

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\* *Frontispiece.*

seventy-three successive cases of ovariectomy without a death. In the beginning of his career he used, as others did, the clamp, but after a time he devised an ingenious method of using the actual cautery, by which he ironed the stump until it was reduced by compression and heat to the consistence and appearance of a very thin layer of cartilage. By this means all danger of hæmorrhage, of pedicle infection and the irritation of ligatures were obviated, the stump was dropped back into the cavity and the abdomen closed. Although this original method necessarily prolonged somewhat the operation still, in the days when asepsis had not been developed and when closing up the abdomen usually meant cutting off half the chances of recovery, the loss of time was far more than compensated for by the increased asepsis and the assured hæmostasis of the stump. Keith was a pioneer in the operative treatment of fibroids by hysterectomy, and his success was greater in this condition also than any of his competitors. As early as 1888, when the average mortality in hysterectomy was from twenty-five to thirty-five per centum—and with most operators nearer the latter figure than the former—he published a series of thirty-three cases with but three deaths. A few years ago he determined to leave Edinburgh and practice permanently in London, which he did in partnership with his eldest son, Mr. Skene Keith, who had long before, under his father's tutelage, become an expert laparotomist. For many years Dr. Keith had suffered from a disease of the kidney and it was a marvel to all who knew him how, in spite of wretched health, he was able to persevere with the enormous amount of work which fell to his lot. He was in steadily failing health for the past three years and he finally died in London, on the 9th of October, 1895.

The most admirable trait in Dr. Keith's character was his earnest honesty. This characteristic shines throughout his life and illumines his whole career. Think of it to-day! *He would never perform a radical operation unless he were convinced that his patient could not be cured nor life made comfortable by other means.* Yet he had all the enthusiastic love of operating which belongs to a good surgeon.

There came a time, however, when his honesty was to be put to a supreme test, and it was the final test of all. On one side was his conscientious opinion which was to call forth the ingratitude and contemptuous indifference of the medical profession; on the other lay an easy acquiescence in the prevailing neo-radicalism in surgery, in the pursuance of which, for the past few years, the immunity of asepsis seems to have made men mad. Dr. Keith chose the dictates of his

conscience rather than the dictum of the aggressive gynæcological spirit of the day and suffered for his courage until his death. Shortly before he moved to London and afterward, he published a number of cases in which he had used the electrolysis of Apostoli for uterine fibroids instead of the radical operation, and he declared it to be his belief that the uterus should not be removed for this disease except in very rare cases nor until the resources of electricity had been exhausted. Immediately he was assailed by a storm of contemptuous surprise and ridicule and, from the position of one of the greatest living laparotomists, he dropped practically out of sight. Men referred to him for a time, with a sad shake of the head, as a great man gone wrong or gone into senility, then quickly forgot the unrequitable debt which the profession owed to this man and hastened to relegate him to the atrium of their memories as a "back-number."

This is not a pleasant subject, probably because it is true, but we were never impressed with the accepted necessity of uttering nothing but pleasing platitudes in a *memorial* of the dead. It has too long been the custom with the medical profession to cast the ægis of a dead member, who was great, over their own shoulders as a vicarious tribute to themselves, when they who willingly praise the dead have scorned the living.

We do not uphold Dr. Keith's contention that Apostoli's treatment is indicated in threatening symptoms from uterine fibroid; on the contrary we as gynæcologists, both from our own experience and from that of others with whom we have been directly associated, fully concur in the consensus of opinion that, when the symptoms warrant surgical interference at all, myomectomy or hysterectomy is the *only* indication.

And yet, holding this opinion, we contend that Dr. Keith should have had the equal rights of a combatant accorded him by those who thought him wrong. To this he was entitled not only because the profession owed him an immense debt of gratitude but for the far more essential reason that there was nothing intrinsically absurd in his opinion, which was and is as worthy of controversial respect as is that of the advocates of radical extirpation. It is one of the wearisome absurdities of neo-radicalism in gynæcology that many of its adherents, who with overwhelming energy and enthusiasm adopt to-day an operative procedure which was discarded twenty years ago and who will discard this again to-morrow, when its novelty has worn off, for another procedure which they ridicule to-day, still claim absolute infallibility for every faddish opinion of the hour and rail with

intolerance against any man, even though his genius and experience would suggest at least a respectful hearing, who turns his face to the current. It has almost come to this—that he who is not equally ready, let us say, to advocate hysterectomy as the only reasonable treatment for uterine fibroid to-day, to repudiate this for possible myomectomy to-morrow and to rush back to hysterectomy again on the next day—as public opinion is blown hither and thither by this or that gynæcological demagogue—is practically ostracized from the profession. We have certainly made wonderful advance in our specialty in the past decade but our *progress* is still problematical. Asepsis has given too great and too sudden an immunity and—there are “too many prophets in Israel.”

Dr. Keith suffered from this condition of the times and any notice of his life and works, which omits to comment upon the reward meted out to him at the close of a brilliant career, throughout which every effort of mind and body was devoted to the advancement and glory of his profession, leaves his life incomplete and fails to tell us that which each of us may hear with profit to himself.

Keith gave many examples of remarkable liberality of mind, among which we may mention the fact, which should be very gratifying to Americans, that he sent both his sons to this country to learn plastic gynæcology, as he said, *at the fountain-head*. His eldest son, Skene, spent many months in New York and Brooklyn for this purpose, while the latter's younger brother, George, entered the Woman's Hospital, as an interne, by competitive examination and served throughout his course with great credit and profit.

Dr. Keith's force of character was remarkable in all directions. He was a devoted, admiring and constant friend and an equally strong though generous enemy. It may truly be said of him, as of most strong-principled men, that those who knew him best admired and respected him most. In this regard he differed from the majority of popularly great men, concerning whom it is sadly true that “distance lends enchantment to the view.”

The portrait, which appears as the *frontispiece* to this number of the JOURNAL, is taken from one in the possession of Dr. Skene and accompanies his *Obituary* of Dr. Keith in the February issue of *The Brooklyn Medical Journal*. To the courtesy of the latter and of Dr. Skene we owe the use of this cut.

## CORRESPONDENCE.

## SECONDARY LAPAROTOMY.

38 BISHOPSGATE, MONTREAL, CANADA.

*To the Editor of The American Gynecological and Obstetrical Journal :*

SIR : In connection with Dr. Parish's paper on Reopening of the Abdomen following Cœliotomy, which, together with the discussion upon it by the Fellows of the Philadelphia Obstetrical Society, appeared in the December number of your JOURNAL, the following cases may be of interest :

In January, 1891, I removed the uterine appendages from a young married lady of twenty-five. The tubes were filled with pus, which had resulted from an attack of gonorrhœa. There were numerous adhesions, the separation of which caused considerable oozing, which had apparently been stopped before the abdominal cavity was closed. A glass drainage-tube was used, and, just before the patient was removed from the table, there was seen to be a good deal of sanguineous discharge coming from the cavity. An attempt was made to remove all of this fluid through the tube by means of absorbent cotton and a long, narrow forcèps, but as this was unsuccessful, the wound was reopened, when extensive oozing from the separated adhesions was observed. Hot pads were applied for some minutes to these bleeding surfaces, which completely checked the loss of blood, and the abdomen was closed. The drainage-tube was left in for twenty-four hours, but was then removed, as there were no indications for its continuance, and the patient made an uninterrupted recovery.

Some time ago I assisted an extremely able operator at an abdominal section for extra-uterine fœtation. Everything was safely removed, but there were many highly vascular adhesions, which caused great trouble from oozing. This was eventually controlled, a drainage-tube inserted, and the patient put to bed. After a second patient had been operated on, our attention was called to the first patient by the nurse, who showed us that the dressings were soaked with what appeared to be almost pure blood. The patient was replaced upon the table and the abdomen opened, when it was found that considerable bleeding was going on from the raw surfaces left by the separated adhesions. Gauze packing was inserted and the patient returned to bed in a very bad condition, but she recovered without any further trouble.

These two cases show the benefit of the secondary operation in a



very marked manner, as both patients would undoubtedly have succumbed if it had not been performed. I shall never forget the look of horror upon the faces of those around the table when I proposed to reopen the abdomen in the first case, yet the result showed that the proceeding was perfectly justified.

F. A. L. LOCKHART, M. B. Edin.

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SUSPENSIO-UTERI OR VENTROFIXATION OF THE UTERUS : ITS  
INFLUENCE UPON PREGNANCY AND LABOR.

1637 N. BROAD STREET, PHILADELPHIA, *January 20, 1896.*

*To the Editor of the American Gynecological and Obstetrical Journal :*

SIR : Having recently had some unfortunate experience concerning the influence of suspensio-uteri upon parturition, I feel that it is highly important that this question be settled in an authoritative way as soon as possible. The only way to determine the question is by studying the actual results as seen in the practice of all operators. I will be much indebted to any one having had a case of pregnancy following suspension of the uterus if he will communicate the details of the case or cases to me.

Very truly yours,

CHARLES P. NOBLE.

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REVIEWS.

PATHOLOGY AND SURGICAL TREATMENT OF TUMORS. By N. SENN, M. D., Ph. D., LL. D., Professor of Practice of Surgery and Clinical Surgery, Rush Medical College ; Professor of Surgery, Chicago Polyclinic ; Attending Surgeon to the Presbyterian Hospital ; Surgeon in Chief, St. John's Hospital, Chicago. Profusely illustrated. Published by W. B. Saunders, Philadelphia.

Professor Senn's new book on the *Pathology and Surgical Treatment of Tumors* is an interesting volume. While it appeals to the general surgeon especially, it has much in it which is of vital interest to the gynecologist.

The style of the book is masterful. The language has an authoritative ring about it which, if it came from an authority less respected,

would make one smile, but which under the circumstances must have the effect of definitely clearing the pathological atmosphere of many a reader by giving him that which Professor Senn's method of presentation makes facts rather than opinions. There are subjects in the book, which appear to be definitely settled by the author's terse style, upon which there might be grave difference of opinion in the minds of more than ordinary authorities.

It would not be just to carry the idea that the book does not discuss many worthy opinions on the subjects in hand, because it does, but not until the author has stated the facts as he conceives them in one or more of his lucid italicized sentences.

The author is a consistent theorist, and soon places his reader on a sound theory of the origin of all tumors, which is adhered to with consummate ingenuity to the end of the book.

The theory adopted is Cohnheim's, with an elaboration of his own, made necessary in order to render the theory universally applicable. "Cohnheim referred every tumor to its proper embryonic layer, and claimed that a tumor never had its origin from mature tissue, but always developed from a matrix of embryonic tissue. This essential tumor matrix he traced back to its embryological source. He believed that during the process of cell differentiation in the embryo, groups of cells not utilized in the growth of the embryo or displaced were arrested in their further development, and remained in a latent condition until their activity was awakened later, when the product of their proliferation resulted in the formation of a tumor." Dr. Senn says of this: "It has much to recommend it, but it does not satisfactorily explain the origin of all tumors." In the absence of better proof of the origin of tumors he adds: "The writer will adhere to the doctrine advanced by Cohnheim, and in addition to it will claim that the essential tumor matrix may be composed of embryonic cells—the offsprings of mature cells—which for some reason have failed to undergo transformation into cells of a higher type, and which may remain in a latent, immature state for an indefinite period of time, to become, under the influence of either hereditary or acquired exciting causes, the essential starting point of a tumor."

"One of the greatest difficulties in the way of a proper appreciation of what is meant," the author says, "by a tumor, is a failure on the part of authors and teachers to draw a dividing line between tumors and inflammatory swellings." It has been the author's custom for ten years to make a sharp distinction between a tumor, inflammatory swellings and retention cysts. In his book he carries

this out with most gratifying consistency and simplicity. He eliminates from discussion all affections of which the microbe origin has been established, as well as swellings caused by retention of a physiological secretion, although the latter (retention cysts) are discussed separately in a final chapter. His completed definition of a tumor, then, as finally evolved is as follows: "A tumor is a localized increase of tissue, the product of tissue proliferation of embryonic cells of congenital or postnatal origin, produced independently of microbic causes."

According to this definition, the most important histological difference between a tumor and a swelling caused by infection consists in the fact that in the former "*the localized increase of tissue is the result of proliferation of embryonic cells (of prenatal or postnatal origin) which are not utilized in the growth and development of the body, or in the repair of injured or diseased parts*, constituting thus a process entirely distinct and independent of the tissues in its immediate vicinity; while an inflammatory swelling results from tissue proliferation provoked by *the action of pathogenic microbes or their toxins upon pre-existing tissue cells.*"

"A benign tumor always remains local, tissue growth being limited to the fixed primary matrix." "A malignant tumor has a similar local origin, but it gives rise to dissemination by migration of cells into the adjacent tissues, or by their transportation to distant parts through the lymphatic or general circulation."

Inflammatory swellings, on the other hand, progress frequently by speedy extension, "by continuity and contiguity of structure," which is one of its most conspicuous clinical features, distinguishing it often from tumor formation. The durability of the new tumor product is one of its strong points of differentiation from an inflammatory swelling.

"*A tumor never disappears except by removal or destruction*" is one of the author's italicized facts. This is re-enforced by the following: "*There is no authenticated record of a spontaneous disappearance of a tumor under any kind of internal medication. In all cases in which such a termination is said to have taken place we have instances in which an infective swelling was mistaken for a tumor. We must therefore regard permanency of the new tissue as one of the evidences in favor of a doubtful enlargement being a true tumor, which early and especially acute degenerative changes would indicate an inflammatory origin.*" Thus "the exclusion of the granulative swelling produced by the bacillus of tuberculosis, the actinomyces, the unknown microbe of syphilis, and the bacillus

of glanders from the list of tumors has greatly narrowed the field of this part of pathology, and it is possible that further restriction will take place when convincing proof can be furnished of the microbic origin of one or of both varieties of malignant tumors. . . . For the present standpoint of pathological bacteriological investigations we are forced to include these affections among the non-infected neoplasms."

The malignant or non-malignant character of a tumor is made dependent upon the stage of the arrested cell growth and the particular embryonic layer from which the matrix is derived. "For instance, a matrix of epithelial cells from the epiblast in which cell growth was arrested near the process of differentiation will, in all probability, become the starting point of a benign epithelial tumor . . . if the development is arrested at an earlier stage, the proliferation will result in tissue of a lower type, and the resulting tumor will be carcinoma; and in mesoblastic tumors we apply the same theory, and the result will be fibroma and sarcoma respectively. Tumors of the connective-tissue type are invariably derived from a matrix of mesoblastic tissue, and all epithelial tumors are connected with the epiblast, or hypoblast, or spring from a displaced matrix from either of these embryonic layers. Dr. Senn believes that all tumor matrices need not necessarily develop tumors. They may remain latent, if proper external influences are not brought to bear upon them, or if such external influences are successfully resisted by the vital forces surrounding them.

*"The growth of all tumors require an adequate, quantitative, and qualitative blood-supply. . . . Local irritation increases tumor growth.* Tumors located upon the surface of the body, or in other parts exposed to irritating influences, grow, as a rule, more rapidly than tumors occupying more protected localities. The application of irritants—such as iodine, blisters, and stimulating ointments, liniments, and plasters—produces the same effect.

*"Relation of tumors to adjacent tissues. . . . The benign tumors push the tissues aside or apart to make room for themselves; the malignant tumors, particularly carcinoma, infiltrate the surrounding connective tissue, and include it as a temporary passive constituent of the tumor mass.* The pre existing connective tissue under such circumstances is subsequently destroyed and removed by the tumor tissue. Sarcoma follows connective tissue, nerve sheath, and blood-vessels; carcinoma invades the lymphatics, and it is through them that vaginal dissemination takes place."

In speaking of degeneration of tumors he says: "Degeneration commences either in the oldest part of the tumor or in parts of it which by accident have been deprived suddenly or gradually of an adequate blood-supply. It is upon this well-known and thoroughly established pathological fact," he adds, "that surgeons have made an attempt to mitigate and anticipate the natural forces which tend to limit or to arrest tumor growth by cutting off the blood-supply from the part, as suggested by Wölffer in the treatment of tumors of the thyroid gland, and gynæcologists in ligation of the uterine arteries in the treatment of non-malignant tumors of the uterus."

*Heredity.*—Prof. Senn treats this part of his paper in an interesting and convincing manner: "We no longer," he says, "speak of tumor dyscrasia, but we can not ignore the influence of heredity in the origin and growth of tumors." The facts which the author employs in his arguments, and from which he finally deduces his opinions, make pages of intensely interesting reading. We can only quote the conclusions. Tumors will not grow, even when the proper matrix exists, if there is a high *physiological resistance*. "Heredity implies, therefore, in connection with the subject now under consideration, two things—(1) a matrix of embryonic cells; (2) suspended or diminished physiological resistance in the tissues of the entire body, or in the immediate vicinity of the tumor matrix. The absence of the former precludes entirely the possibility of the formation of a tumor, and only the presence of the latter negative condition enables the matrix to proliferate tumor tissue. . . . We have reason to believe that this predisposition to tumor formation is often hereditary, and that it can be produced artificially by acquired pathological conditions which weaken the tissues, such as irritation and inflammation."

In speaking of race influence Prof. Senn says: "Negroes suffer more frequently from the different forms of fibroma than does any other race." This fact has been denied by Dr. Middleton Michel, of Charleston, S. C.—one who has made a considerable study of this question among the negroes of the Southern States.

*Age.*—At puberty we most frequently meet with branchial and dermoid cysts, cysts of the ovary, and parovarian cysts, and adenoma of the mammary gland. "In adult life, fibroma, osteoma, chondroma, and other mesoblastic tumors are more prevalent. Carcinoma manifests a predilection for the condition incident to senile marasmus, occurring most frequently in persons between fifty and seventy years of age."

*Sex.*—"Statistics show on the whole that the male sex is more



predisposed to tumor formation than is the female. . . . C. O. Weber gives the proportion of males to females sixty-four to thirty-six."

*Social Status.*—From statistics gathered in England and Wales (and this is backed by other statistics quoted), "Moore came to the conclusion that cancer becomes more frequent with increasing prosperity of the people."

*Traumatism.*—"The influence of a trauma in exciting tumor growth can no longer be denied. The different forms of sarcoma frequently follow an injury. . . . The statistics of Boll, collected with a view to prove the traumatic origin of cancer, show that of a large number of cases only about twelve or fourteen per cent. were traceable to traumatism.

"*Traumatism alone can no more produce a tumor than can inflammation occur without the presence of pathogenic microbes.*" The trauma can act only as an exciting influence in stimulating a pre-existing matrix of embryonic tissue into active tissue proliferation, or in furnishing, by its remote effects on the tissue, a postnatal matrix of embryonic cells.

*Contagion.*—"Under this heading . . . it is only necessary to mention the malignant varieties—carcinoma and sarcoma. The popular fear of the contagiousness of these growths lacks foundation. *There is not a single well-authenticated case on record in which the disease was transmitted from man to man or from animal to animal by contagion.*"

*Clinical Aspect of Benign and Malignant Tumors.*—"A benign tumor remains limited to the part or organ primarily affected; malignant tumors, on the contrary, ignore boundary lines, and affect adjacent tissues irrespective of their anatomical structure. Every benign growth is surrounded by a limiting capsule . . . beyond which it never extends. This isolation from the surrounding tissues is the most distinctive anatomical feature of benign as compared with malignant tumors." Complete removal of the benign tumor is never followed by recurrence, while the "incomplete removal of a benign tumor is always followed by recurrence unless the remaining part of the tumor is subsequently destroyed by suppurative inflammation or by degenerative changes."

"A tumor is either benign or malignant; there is no connecting link between them." The recurrence of a tumor after extirpation may be explained as follows: 1. The tumor was incompletely removed. 2. The primary tumor removed was malignant from the beginning. 3. The new tumor may develop in the scar of the operative wound or in the immediate vicinity.

This is what he has to say about malignant tumors having an origin from postnatal embryonic cells; it also gives a succinct statement of his theory: "The writer has for years maintained that embryonic tissue of postnatal origin may, in the production of tumors, serve the same purpose as Cohnheim's congenital matrix. It is not difficult to understand that embryonic cells during the process of regeneration after inflammation, or in the healing of a wound or a fracture, may fail to undergo evolution into so complete a state of perfection as the maternal cells which produce them, and that such cells are set aside and remain in the tissues in a latent condition in a manner similar to that claimed by Cohnheim for his congenital matrix of embryonic cells.

In the diagnosis of tumors the exploratory and aspiratory needles are recommended with too little warning against their frequent use in the diagnosis of abdominal tumors. The dangers connected with the indiscriminate use of these instruments are not made conspicuous enough.

In speaking of the value of the microscope as an aid in diagnosis of tumors, he claims that its value has been greatly overestimated. "*The greatest blunders in diagnosis and treatment have been committed by surgeons of eminence through placing too great reliance on the microscopic examinations of fragments of tumor tissue obtained either before operation or from specimens removed.*" In this connection, as an example, he refers to the case of the late Emperor Frederick of Germany.

In speaking of prognosis he says: "The nearer the anatomical and clinical aspect of a tumor corresponds with inflammation, the greater its malignancy. . . . *Complete removal of a benign tumor is never followed by recurrence. The same favorable results will follow a thorough removal of a sarcoma or a carcinoma, if the operation is performed before regional infection has taken place. . . .*" The following statement, if applied to carcinoma of the uterus or breast, will not be universally accepted—viz.: "The partial removal of malignant tumors, with extensive regional dissemination, is often followed by aggravation of the local conditions and hastens the fatal termination."

*Treatment of Tumors.*—"No kind of internal medication has any influence whatever in limiting tumor growth, much less causing the disappearance of a tumor." In speaking of the medical treatment of uterine myoma, he believes that under the prolonged use of ergot diminution in the size is effected, but in none is there a complete disappearance.

Curetting of the uterine cavity is recommended, especially if the mucous membrane is the seat of adenomata.

Electrolysis gets the ordinary praise accorded it by surgeons. He says: "Electrolysis combined with rest will diminish hæmorrhage and in a certain percentage of cases bring about reduction in the size of the tumor, no one will deny, but as a curative measure its claims have been, to say the least, overestimated."

Enucleation is recommended for myoma accessible from the vagina. Of morcellation he says: "There can be little doubt that Péan and his followers have carried myomotomy by morcellation too far. The average aseptic surgeon will obtain better results by laparotomy than by piecemeal extraction if the tumors are large."

Vaginal hysterectomy for fibroids he gives a mortality of thirteen per cent. This is surely ancient history. He gives the removal of the uterine appendages a legitimate place in the operative treatment of myofibroma, where enucleation is unfavorable, and when there are not serious pressure symptoms.

In the treatment of tumors such as are of interest to the abdominal and pelvic surgeon, from the standpoint of an operative gynæcologist, Prof. Senn's book will be found inadequate and disappointing. With the exception of his own operation, which is new in name but not in principle—the principle having been utilized several years ago by Van der Warker and Kelly and dropped by both for more advanced methods—the interesting steps in the evolution of hysterectomy, as led by gynæcologists of this country, are well-nigh ignored. The work of Byford, with the most ideal method of extraperitoneal fixation, is absent; the small but most important point of tying the uterine artery outside of the uterine tissue adopted by Baer, which made the intra-abdominal treatment of the stump ideal and for the first time possible, is not particularized; the Eastman operation is mentioned, but attributed to some one else than its rightful author.

Many gynæcologists would not agree with Prof. Senn in his treatment of carcinoma of the cervix. He says "common sense would dictate that in a limited carcinoma of the external os it is no more necessary to remove the entire uterus than it would be to extirpate the whole lower lip in a beginning carcinoma of the lip." I believe that the whole uterus should be removed if any portion of it is involved, because, first, no one can say positively when the disease is limited carcinoma; second, because the alternative operation—high amputation of the cervix—gives a higher immediate mortality in the hands of expert operators than does vaginal hysterectomy. In his

history of vaginal hysterectomy for carcinoma he ignored his countryman Lane, who did the first modern vaginal hysterectomy one year before Czerny's revival. All the cuts illustrating vaginal hysterectomy are old, and were not good when they were new. Prof. Senn says the use of forceps for controlling hæmorrhage in vaginal hysterectomy "is open to serious objections which do not apply to the use of the ligature, the most important being insecurity against secondary hæmorrhage and inability to carry out aseptic precautions to the required extent." A large number of operating gynæcologists will call this fallacious argument.

Prof. Senn ordinarily recommends Mikulicz' drain in abdominal surgery for blood oozing rather than the glass tube. In ligating the pedicle in removal of normal ovaries or cysts of the ovaries the pedicle is transfixed with double silk ligatures and ligated. This requires that considerable tissue be left on the distal side of the ligature to prevent its slipping, and the transfixion of the pedicle favors venous hæmorrhage with the broad ligament below the ligation, resulting in occasional hæmatoma.

The technique of laparotomy for tumors, the preparatory treatment for laparotomy, and the after-treatment for this important operation is only generalized, while a book of such pretensions and from so eminent a teacher should be made a mirror of those important details which have been so marvelously developed within the last four years—details which, when mastered and applied by experts, have been the means of forcing their average death-rate for all laparotomies down to two per cent.

In the treatment of tumors of the intestines one is again doomed to disappointment. Here the author does not rise to the mountain-top of his greatness. Here we find the recognized founder of intestinal surgery content with his magnificent foundations but jealous of the portions of the beautiful superstructure not his own, and which without his gigantic beginnings could not have been. Intestinal surgery, since Prof. Senn has blazed the way, is one of the most fruitful sources of investigation we have, and every experimenter in this direction by his every advance is but demonstrating the greatness of the principles laid down by its founder.

It is not becoming that the Murphy button and the many other devices which have for their object the extending and exemplification of his own great principles are scarcely mentioned, and then only to condemn. The Murphy button, while it may in time take its place as one of the obsolete curiosities of the evolution of intestinal surgery,

is at present finding a place and filling it, to the exclusion, to a great extent, of the decalcified bone plates, and while it is but a step in advance, it should have been recognized by Prof. Senn. On page 335 he makes his only reference to the Murphy button, and there in a way to condemn it.

On page 670, when he says "a cholecystenterostomy is absolutely contraindicated except in irremediable occlusion or obliteration of the common bile duct," he simply leaves the technique of this operation to the imagination of his reader; it is not discussed.

But the book is a most interesting one. It is systematically arranged, its style is convincing, and it is full of valuable information and helpful suggestions. I have never read a medical book with more genuine interest.

(F. H. MARTIN, Chicago.)

PREGNANCY, LABOR AND THE PUERPERAL STATE. By EGBERT H. GRANDIN, M. D., Consulting Surgeon to the New York Maternity Hospital; Consulting Gynæcologist to the French Hospital, N. Y., etc.; and GEORGE W. JARMAN, M. D., Obstetric Surgeon to the New York Maternity Hospital; Gynæcologist to the Cancer Hospital, N. Y., etc. Illustrated with Forty-one Original Full-page Photographic Plates from Nature. Royal octavo, pp. viii-261. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia.

While the "keynote" of the previous volume on *Obstetrical Surgery*, by the same authors, was "election" in surgical operations occurring in the practice of obstetrics, so in this volume it is the "facts" upon which the major part of the obstetrical practice of to-day is founded, as against "theory."

It is not intended as a treatise on the "Theory and Art of Midwifery," but is offered as a thoroughly up-to-date working guide in the practice of this most important branch of medicine. "It is clinical in its teaching. It is direct in its statement wherever *facts* warrant such directness. Where divergent views obtain, the weight of authority is on the one side or the other; at least it is safe to teach that which commends itself to the majority of teachers, even though in a very short time further experience may cause modification in the teaching." Anatomical, embryological, and pathological data are inserted only when essential. This volume will not be as attractive to many, in this ultra-operative period, as its predecessor. Still it has a place in the medical literature of the day, and will prove itself of



great assistance to the active practitioner, who by a careful study of its two hundred and fifty pages can bring himself well abreast with the most advanced obstetrical practice of to-day. Great progress has been made in the practice of obstetrics during the last decade, but its advances have been most rapid in the lying-in hospitals, for the death-rate in these institutions, as compared with that in private practice, shows too plainly that these "facts," and their practical exemplification as herein so clearly and forcibly set forth, have not as yet been grasped by the general practitioner.

The opportunity of personally observing and becoming familiar with the phenomena of pregnancy, labor, and the puerperal state, as seen in the living and at the bedside, has heretofore been most difficult, and is now to be had only in large medical centers. To those who have not had such advantages, a clinical work of this kind, written in the direct, concise, and impressive style of the authors, will prove of much assistance to conscientious workers in this most important field.

Part I deals with pregnancy, and is composed of chapters on Diagnosis, Duration, and Hygiene of Pregnancy, Pathology of Pregnancy, and Diagnosis of the Presentation and the Position of the Fœtus. They are short, clear, and forcible, being arranged and grouped entirely with reference to their value from a clinical standpoint, the chapter on Pathology of Pregnancy being particularly valuable.

In reference to the diseases of the kidney complicating pregnancy no attempt at a *résumé* of the many theories advanced is made, but the data is offered upon which is based a line of treatment in accord with the general modern belief. The clinical history of eclampsia is clearly drawn and the method of treatment carefully laid down. No mention, however, is made of the use of *veratrum viride* as a prophylactic measure, although its value in this condition is well recognized.

Part II is devoted to labor, with chapters on the Mechanism, Clinical Course, and Management of Normal and Abnormal Labor, and Care of the Newborn Infant. These chapters, particularly the last three, will be found most instructive, as they depict in the most graphic manner, aided by photographs from life, the actual course and management of normal and abnormal labor as carried out in the large lying-in hospitals, together with many valuable points and suggestions only to be obtained by a large experience and careful observation.

Part III contains but two chapters—the Normal Puerperium and the Pathological Puerperium. The ætiology of puerperal septicæmia is fully discussed, and the conclusions stated in no uncertain terms. "Puerperal septicæmia is never endogenous in origin, but is *always*

exogenous." This chapter will furnish food for serious reflection to the doctor who has never had a case of septicæmia in his practice, and does not believe in antisepsis, but occasionally bemoans the sad fate of a healthy young primipara who, unfortunately, developed "malaria," or "caught cold," or contracted "inflammation of the bowels" during her puerperium.

The clinical picture of septicæmia with its varying symptomatology is most accurately depicted. The diagnosis is clearly and forcibly set forth. The treatment, based on the bacteriological ætiology of the disease, is practically that of wound infection in other parts of the body. It is fully, carefully, and minutely laid down, varying with the degree and location of the infection, and is most valuable.

The illustrations, while new and undoubtedly true to Nature, can hardly be said to be in keeping in point of merit with the text.

We would also suggest the great advantage of the two volumes being combined into one for obvious reasons.

The type is large and clear, the paper good, and the typographical work, with the exception of the illustrations, excellent. (E. P. M.)

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## TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.\*

Stated Meeting, September 20, 1895.

### *Extra-uterine Pregnancy.*

Dr. EMORY LANPHEAR, of St. Louis (present by invitation): Dr. Robinson wished me to present this specimen which he secured this afternoon in an operation at the Harvey Hospital, assisted by Drs. Lucy Waite and H. P. Merriman, and I take pleasure in doing so for three reasons: First, on account of the character of the specimen; second, on account of the short time which was required to complete the operation; and third, on account of the mistake in diagnosis.

The patient was a lady about thirty-four years of age, and for several years had complained of some pelvic trouble, presumably

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\* These Transactions were not received until after those of November had gone to press.—EDITOR.

chronic salpingitis. Late in the autumn of 1894 she became pregnant. There was no history, so far as could be elicited, of any rupture of the tube, or any symptom pointing to such rupture. At the proper time she experienced quickening, but knew that there was something wrong, and came to this city, I think in May, consulting several physicians with a view of having some operation done. It was at that time impossible, according to the doctors' opinion, to make a diagnosis with any degree of certainty; she was therefore advised to wait, and did not return until a few days ago. According to her statement, on the 11th of July last the fœtus died. She is certain of the date, and it is quite probable, from the character of the specimen, that she is correct in her assertion that the child died at that time, when she was about eight months pregnant. Shortly after the death of the fœtus the breasts began to decline in size, becoming flabby; and she underwent the other usual symptoms which accompany death of the fœtus. Upon her arrival here she was examined by a number of prominent physicians, but no agreement could be arrived at as to the character of the trouble; the majority, however, inclined to the belief that the patient was suffering from a myoma, complicated with pregnancy and death of the fœtus; but whether the child was in the uterus could not be positively determined. Upon section to-day a mass resembling the uterus came into view as soon as the abdominal wall was incised, and the operator, while attempting to raise this, penetrated the envelope of the fœtus. Examination of the specimen will show the child still enveloped in its covering attached to a portion of the placenta. There is also a good-sized blood clot that has shrunk fully one half in the alcohol, which had given rise to the opinion that there was myoma present, it being felt through the abdominal parietes.

Dr. Robinson and myself were not at first agreed as to the character of the extra-uterine pregnancy—that is, the location of the fœtus; but it is now our opinion that this is an intraligamentous pregnancy, that a rupture from the tube had occurred into the broad ligament, and that the envelope is but the peritoneal surfaces of the broad ligament. At the point where the two layers of peritonæum are separated to inclose the child there was a continuation of the cavity downward into the pelvis alongside the uterus, in which was a blood clot consisting of about one quart of blood. There was no connection between the sac and the general peritoneal cavity. I think the patient was on the table less than forty minutes. In the removal of the fœtus the peritoneal envelope was of necessity torn, in

order to secure the placenta (which was extracted in its entirety) and the blood clots which lay deep within the folds of the broad ligament. After cleaning the cavity, it was necessary to suture the remnants of the sac to the parietal peritonæum, to pack the sac with gauze, and provide drainage of the general cavity. The operation was complicated and rather tedious, yet it was completed within forty minutes, and in this case time was a great desideratum. I have always maintained that the time element in abdominal work is one of the most, if not the most, important part of abdominal surgery, and the rapidity with which this operation is done, I am sure, may save the patient's life.

The third important point was the mistake in diagnosis. This is particularly gratifying to me, from the fact that for a long time I have maintained that in the large proportion of cases of intrapelvic growths it is impossible to say accurately what the character of the lesion is until the abdominal wall has been opened. And when some of the best men in Chicago make the mistake of confounding an extra-uterine pregnancy with an œdematous myoma, I feel sustained in the position I have so long maintained.

#### *A Monstrosity.*

Dr. JOHN A. LYONS: This specimen is an encephalic foetal monster. The face is very strongly developed: the nose is large and flattened; the eyes are very large and almost protrude from their sockets; the ears are exceedingly large, and the tongue is also larger than normal, and protrudes from the mouth.

The head shows moderate development anteriorly, but has no vertex. The two parietal and occipital form a rough conglomerate mass. Rhachischisis posterior exists, involving the four upper cervical vertebræ.

Portions of the atlas and axis are united, and protrude on either side in a manner to resemble horns. The spinal cord is normal in size and position. The laity usually attribute such anomaly to maternal impressions received during early gestation. Many physicians regard syphilis as an ætiological factor.

Saint-Hilaire, Meckle, and Dareste attribute the arrested development to pressure on the amnion, which I believe is the correct ætiology.

In this specimen both membranes are firmly adherent to the placenta and form a marginal attachment. The portions of the membranes are very thick, and show evidence that an inflammation of the

placenta existed. The family history is good. The father and mother are about thirty and twenty-eight respectively, and have good health. This is their second child and it lived ten minutes. Their first child is twelve months old and is perfectly well.

*Uterine Myoma containing a Fetus.*

Dr. T. J. WATKINS: This specimen I exhibit not because it is especially rare, but because it is a very pretty specimen. It is a fibroid of the uterus which has had two centers of development—one in the anterior and the other in the posterior wall. Within the uterine cavity are the attached placenta and the amniotic sac, and within the sac is a foetus of about eight weeks' gestation. The fibroid in the posterior wall was impacted in the pelvis and would have made labor impossible, and that was the reason for the hysterectomy. The patient made an uneventful and rapid recovery.

*Ichthyosis Uteri.*

By EMIL RIES, M. D.

(See page 184.)

Dr. D. T. NELSON read a paper entitled

*When and How should Cancer of the Uterus be removed?*

He advocated early operation, and preferred the vaginal route of operation. He advised the use of ligatures in most cases, and forceps in exceptional ones.

DISCUSSION.

Dr. STEHMAN: In answering the question as to when and how uterine cancer should be removed, I would say, first, that it is of the utmost importance to make a correct diagnosis. Then, after being sure of the pathology, it is equally important that we determine whether the lesion is limited to the uterus; for if it is not, but has involved the surrounding tissues, the case is surely inoperable. This extension manifests itself in impairing the mobility of the uterus, when, if this be the case, an operation should be undertaken with great reluctance.

In operable cases, I think by way of the vagina is the preferable route. However, where the uterine body is primarily involved, with lymphatic enlargement, or in the undistended vagina of the virgin, or senile contracted vagina of women advanced in years, the abdominal



method will succeed better. Moreover, there are also many cases where a combination of both these methods may not only be of great advantage, but also be even necessary to secure the best results.

Should we use the forceps for compression, the suture, or a combination of both?

It is an undoubted fact that so far as performing the operation is concerned, there is much to be said in favor of the clamp. The gaining of time, which is such an important factor in the performance of all operations, is deserving of the greatest consideration. The clamps can be applied in all cases that can be benefited by an operation, whereas this is not true of the suture.

Formerly, when nearly every case of uterine cancer was considered operable, it was sometimes difficult, in fact impossible, to apply the clamp except as directed by the sense of touch, but now we feel that a broad ligament that can not be drawn down sufficiently to apply the clamp *in situ* is scarcely an operable case; therefore the objection of traumatism or injury to important viscera by the clamp is not so weighty as it was previously. It is true that to use the clamp is not as ideal as the suture, and then it is more unsurgical; but even this should carry no weight in considering the best methods of operating. The clamps necessitate drainage; open wounds increase the risk of infection. They are also more distressing to the patient; but since they are removed at the end of thirty-six or forty-eight hours, and by their use the patient has lost less blood, taken less anæsthetic and consequently suffered less shock, even this objection falls.

Whatever method we may employ, all things being equal, there can be little difference as regards the prognosis so far as recurrence is concerned.

In vaginal hysterectomies for conditions other than malignancy, where there is no distention of the vaginal tissues, my cases seem to show no difference in results; but where the integrity of the vaginal structures is impaired, and we desire to remedy the defect, I should undoubtedly prefer the suture.

Dr. E. C. DUDLEY: I am in accord with what Dr. Stehman has just said, especially about the instruments. Simple straight forceps are much more manageable. This is my conclusion after having used a great variety of forceps of various curves and angles, including one of my own, all of which I have now discarded. Any forceps for this purpose should be straight, should have a strong lock and a strong jaw. The question as to when cancer of the uterus should be removed is quickly answered. It should be removed when it can be

removed—*i. e.*, when it can all be removed. If the cancer has extended far beyond the uterus into the parametria, so that all the diseased tissue can not be taken away, then, of course, the disease will continue and the operation will be useless. The question resolves itself into one of diagnosis. The diagnostic point is how far the disease has extended, and that is sometimes very difficult to settle. However, sometimes the doubtful cases turn out well. Even a few months of respite is something.

As to the forceps *versus* the ligature. There is certainly a great advantage in the former in the very fact that you can by the use of the forceps grasp a considerable portion of the broad ligament. Now, whatever is included in the grasp of the forceps will slough, and we want it to slough, because in this way the last diseased tissue may be removed. One may grasp a broad ligament with long forceps, pull it down, and then grasp it still farther back with another forceps. In this way a large portion of the broad ligament may be destroyed, and the patient thereby is protected against the possibility of leaving some portion of the ligament that may have been involved in the disease. Of course the glands should be carefully removed if possible, as in cancer of the breast.

The forceps is a good means of drainage. It is not necessary to have a hollow drain. The secretions find their way along the solid forceps by continuity of surface, and the field of the wound is thereby thoroughly drained. Some one has found by experiment that the drainage along the surface of a solid cylinder is nearly if not quite as copious as that which goes through a hollow cylinder. I have sometimes caught the peritoneal margins of the wound in small forceps, using three or four, from one broad ligament to the other, so as to hold the margins of the peritonæum together, and in that way to approximate the margins by means of the tips of the pressure forceps. This practically closes the wound, and still it leaves little spaces between the forceps where any secretions in the peritoneal cavity may escape. After reporting this as a new method I received a letter from Sir Spencer Wells in which he called my attention to a paragraph in one of his articles in which he had proposed the same thing, but he did not claim ever to have put the idea in practice.

There is no reason why one should confine himself to the use of the forceps to the exclusion of the ligature, or to the ligature to the exclusion of the forceps; they are both effective, both satisfactory; therefore whichever is most convenient, whichever will facilitate the operation, is best to use. When there is no malignant disease the

ligature, if it can be as easily applied, is unobjectionable, because there is then no object in destroying the parametric tissue. In cancer of the uterus, forceps are desirable for the reasons already given.

Dr. T. J. WATKINS: The technique of vaginal hysterectomy, I believe, has changed much since we have learned better the anatomy of the broad ligaments as a result of numerous operations. Formerly the broad ligaments were supposed to be extremely hæmorrhagic; that if we punctured the pampiniform plexus or left any portion of the broad ligament untied or unclamped, the patient would certainly die from hæmorrhage. Therefore when vaginal hysterectomy first came into use it was considered necessary to clamp or ligate the entire broad ligament. Now, however, we know that a very large portion of the broad ligament does not bleed when severed.

Of late I have been doing vaginal hysterectomy by separating the vagina from the cervix in the usual manner; then, while the uterus is firmly pulled downward, the base of the broad ligament on one side is brought into view and severed. The uterine artery when cut is clamped with a small forceps. Any other bleeding points are included in this forceps, or an additional one is used. The same procedure is used on the other side. If all the cancerous tissue was not curetted or excised before incising the vagina it is now thoroughly cut away. Blunt dissection, anterior and posterior, to the uterus, extending through the peritonæum, is practiced before the bases of the broad ligaments are severed. If the uterus is very large, or if much manipulation is needed to free adherent ovaries and tubes, the bleeding points in the bases of the broad ligaments are secured with ligatures; otherwise the small clamp forceps is left. The fundus of the uterus is now brought down into the vagina, together with the ovaries and tubes, either by the anterior or posterior method, and the tops of the broad ligaments are easily secured with small forceps, one on either side, and the uterus excised.

The advantages of this method of operating are, very little tissue is included in the forceps, which occasions little suffering and only slight sloughing results. The operation is easy of execution. It is not, however, readily done when the vagina is small or when the uterus is not freely movable.

Dr. J. H. ETHERIDGE: This seems to be a pretty broad subject to discuss and a very great deal can be said about it. With regard to the first part of the subject—When shall we remove a cancer?—I think Dr. Dudley has epitomized it beautifully when he says “when you can”; that is right. It is unfortunately the case that we get cancer

when it is too late ; we can not do anything, or if we do we seem to hasten the patient's death. The second part of the subject—How to take it out—is very great. Dr. Byrne, of Brooklyn, tells us he takes out cancer with the thermo-cautery, as high as possible, and his patients do not come back for years. Dr. Baker, of Boston, tells us he gets remarkable results by making the high amputation of the cervix, and lots of his patients do not come back for years. We do the same thing, and our patients come back in a little while. So it seems to me there are cases and cases. Now, I believe this to be true, and Dr. Stehman touched upon that in a very apt way when he said that diminished mobility of the uterus indicates the involvement of the broad ligament. I believe where we have a little invasion of the cervix and no invasion of the broad ligament, as shown by mobility, a simple vaginal hysterectomy is the best method to employ ; but if we have a case where the broad ligament is involved, we can do a great deal more complete work by combining the hysterectomy operation, cutting loose the cervix from the vaginal mucous membrane ; then pushing up as far as possible and grasping as much as we can of the broad ligament in the forceps, then grasping above that, and completing the denudation in that way, with the hand from below, we can put the forceps as far out as to the pelvic wall. Where there is cancerous invasion of the broad ligaments it is an invasion we can never entirely reach ; but I believe we give a great check to the rapidity of the absorption and the dissemination of the cancerous material by this free sacrificing of the broad ligament in the combined vaginal and abdominal operation. If one takes out two or three cancerous uteri by this combined method and thinks he has got very good results, and is emboldened to attack a case that is too much involved, where the broad ligament can not be secured by either forceps or ligature, and the patient has a hæmorrhage and dies, I think he will become very timid about attacking every case of that kind. But it is true, nevertheless, that the combined operation in certain cases where there is an involvement of only one broad ligament presents the most brilliant and satisfactory results we have to expect in this very terrible disease.

In regard to the difference between the use of the clamps and ligatures I think this : Any one who starts out to be an advocate of the clamp exclusively or the ligature exclusively makes a mistake, because in certain cases the use of the clamp is superior to that of the ligature, and in others the ligature is preferable to the clamp. I do not know that I can define offhand just how I would select the

clamp for some and the ligature for others ; but in cases where the cancer is high up the use of ligatures prolongs the operation out of all reason ; there I should use the clamp. Where the uterus is low down, the vagina capacious, and the broad ligaments long, I would use the ligature in some cases.

I do not pay much attention in practice to Dr. Nelson's objection to the use of the forceps in the way of the necrotic end of the broad ligament left after the removal of the forceps. I have always looked upon this necrotic tissue as the explanation of the little temperature we get for the first five or six days after the patient is put to bed. One great advantage in the use of the forceps is the celerity of the operation ; we can take out the uterus and put the patient to bed in a few minutes in the majority of cases. The operation is often performed within twenty minutes from the time the patient is placed on the table. I do not think we are justified—in women who are anæmic, septicæmic, or have lost blood and flesh from the presence of cancer—in doing an operation that is two, three, or four hours long. That is too long altogether. With the woman's tissues full of micro-organisms, as they are, we will find that to almost devitalize her and paralyze her tissues by prolonged operation is very unwise.

Dr. Stehman speaks of the unsurgical aspect of forceps used in the vagina. I do not believe it is any more unsurgical than a metallic instrument to do an operation with, or the old-fashioned splints or plaster of Paris for fractures. I think the use of forceps in the vagina is highly surgical.

Dr. E. C. DUDLEY : I wish to emphasize the last remark of Dr. Etheridge as to what is surgical and what is unsurgical. There is no possible doubt that the use of hæmostatic forceps in the removal of uterine cancer will in many cases save life. Now, if that be unsurgical let us pursue the unsurgical course. We can afford to be unsurgical if that will save more lives. A meritorious method can not be destroyed by an epithet.

Dr. FERNAND HENROTIN : The subject has been pretty well discussed and I have but one word to say, and that is in regard to the principle in these sections, and I wish only to repeat a few remarks I made some months ago on this subject. Heretofore all septic inflammatory diseases, pus, tubes, etc., were removed through the abdomen, but I believe the near future will show that many of these forms of disease may be taken out from below to better advantage, and, on the contrary, the malignant diseases that we have heretofore been taking out from below will be done by opening the abdomen in



almost all instances. When you discover carcinomatous tissue at the cervix you say the body should be taken out, but you leave parts of the tubes and ovaries. In my opinion, the ideal way of removing cancer is by the combined operation. One must begin at the top and attack the infundibulo-pelvic ligaments, then the ovary and the tube, keeping as close to the pelvis as possible. By the use of the combined method in these cases we have the advantage of the ligature at the upper part tying off the broad ligament, and then the uterine arteries are clamped through the vagina; then, there being only a ligature at the upper part of the ligament, after the uterus and adnexa are cut away you can close the wound entirely with a running suture and pack from below, and you will have an answer to the question how a cancer of the uterus should be removed.

Dr. E. C. DUDLEY: I would like to ask Dr. Henrotin if it is his understanding that the majority of operations for uterine cancer are done without removing all of the tubes and ovaries?

Dr. FERNAND HENROTIN: I mean simply that portions of the tube are frequently left in, and of the ovary too; you can not do as perfect work and take away all of the broad ligament by working from below as from above in malignant disease where every small amount of tissue counts. In inflammatory disease you do not need to cut away all the little pieces of diseased tissue.

Dr. E. C. DUDLEY: My experience with clamps in vaginal hysterectomy includes some forty cases, and I do not recall any difficulty in getting the whole of the tube together with the uterus. The tubes frequently have to be clamped with other forceps than those used for the broad ligament.

Dr. WELLER VAN HOOK: The questions before the Society are questions that rest at last upon our knowledge of the pathology of uterine carcinoma. Much practical knowledge of the natural history of these tumors can be gained by clinical observation. But microscopical study affords also a substantial basis upon which to build.

In Virchow's *Archiv* (Band cxi, H. 1) is an article by Seelig, of v. Recklinghausen's Laboratory, in which the extension-paths of uterine carcinoma are carefully studied. After detailing the mode of spread of the disease within the uterus itself he describes the growth of the disease into neighboring structures. No statement that he makes is of greater import than that the carcinomas of the cervix are especially prone to grow into the vaginal walls. And, as the muscular layers are chiefly affected at first, the observer is likely to imagine that

the vagina is normal. The practical lesson is that we should remove a ring of vaginal tissue in operating on all cervical carcinomata.

The parametrium is, as we already know, invaded through its lymphatic vessels. The importance of removing as much as possible of this tissue in all cases is not to be overestimated.

A study of Seelig's article can not fail to interest every practical operator.

Dr. M. L. HARRIS : I merely wish to say a few words in the same line as Dr. Van Hook has done—that is, about the method of extension of carcinoma. The work Dr. Van Hook has spoken of mentions the extension of carcinoma upward, and I would like also to call attention to the extension of carcinoma downward in the direction of the lymph current in the lymph channels. The lymph channels of the mucosa of the uterus take a downward course, passing through the substance of the cervix to the utero-vaginal junction, then into the cellular tissue of the broad ligaments. In carcinoma involving the mucosa of the uterus, small carcinomatous nodules have been found in the lymph glands, and in the cellular tissue of the broad ligament when the body of the uterus itself and the cervix were still apparently not involved. This extension of carcinoma through the lymphatics has been demonstrated so clearly in carcinoma of the breast that soon after the breast itself is positively involved in the carcinomatous process, small nodules are also detectable in the lymph glands considerably removed from the primary growth. Likewise in this connection I would call attention to Petrich's work on extension of carcinoma through the lymphatics where carcinomatous nodules are not only frequently, but almost invariably found in the first lymph glands. This brings up the question of how to operate. From the remarkable results which have followed radical operation in the breast where we invariably remove tissues in the direction of the lymph current, remote from the primary growth, even when macroscopically we are unable to determine their infection, it would seem that we should follow the same principle in removal of the uterus, and this is to be accomplished only by the combined or laparo-vaginal operation. There is no reason why we should not follow up the lymphatics in the direction which they extend from the uterus, removing them up to at least the first or second lymphatic glands with all of the intervening connective tissue, just the same as we now invariably remove the lymph glands with connective tissue, in the axilla, for instance. This can not be done through the vagina. We can better remove the upper part of the vagina from below, and, as Dr. Van Hook has

said, this is highly desirable, because the lymphatics extend in that direction. We should remove not only the broad ligaments, but the connective tissue and lymphatics along the iliac vessels as high up perhaps as the bifurcation of the aorta, and this of course can only be done from above. Hence I think the combined laparo-vaginal operation should always be done for carcinoma uteri.

Dr. E. RIES: I have seen the specimens of Seelig, who began his work under my direction. I know that the lymphatics have been infected before anything could be found in the blood-vessels of a carcinomatous uterus. The most of the infected lymphatics surrounded the blood-vessels, but in the blood-vessels nothing pathological could be found. It is therefore probable that the infection goes along the lymphatic ducts rather than along the blood-vessels.

It may interest Dr. Harris to know that the operation of which he has spoken was proposed by me in March of this year, and that it has been done by Dr. Rumpf, of Berlin, about six weeks ago with perfect success. I have proposed to do this operation in every case of cancer of the lower segment of the uterus because our microscopical examinations have shown that the cancer has always gone much further than clinical experience seems to show. Cancer has been seen not only in the lymph vessels of the body of the uterus, but it has been seen in the lymph vessels of the parametrium long before it was possible to detect it macroscopically. I have been able to find small microscopical nests of cancer in the Fallopian tube at a time when it seemed absolutely normal. From these observations I was obliged to follow the same association of ideas as Dr. Harris has done, and to say to myself that in doing hysterectomy for cancer we must remove all infected tissue, as is done in the removal of cancer from other parts of the body. I therefore proposed this operation, but I have not had a suitable case for it since I have finished my experiments. The twenty-five vaginal hysterectomies for cancer of the uterus which I have done were done without removal of the glands. I had to perform several experiments before attempting the operation, because there were some conditions I was not sure would be favorable to the operation—one, for instance, the peeling off of the peritonæum during the operation. I have made experiments on the dog, peeling off large pieces of peritonæum from the abdominal walls; they have never sloughed, and the dogs have always recovered perfectly well. So there is no doubt that peeling off of the peritonæum would do no harm. I had further to ascertain if there would be danger of injuring the blood-vessels. According to the experience of surgeons

in extirpation of the glands of the axilla in cancer of the *mammæ*, there is little danger of injuring the blood-vessels not involved in the disease, and if the blood-vessels are involved it is better not to operate. The operation which Dr. Rumpf, of Berlin, did was exactly as I described it, but he did it in a case on which I would not operate. He did it in a case where he could find the swelling of the glands by examination before the operation. I would not advise operation in such a case, because I believe the disease is too far advanced for an absolute cure. I propose to do the operation in cases where the cancer seems restricted to the uterus itself, and to do the operation according to the principles used in operations for cancer of the breast, which must be the prototype for operation on cancer of the uterus.

Dr. E. C. DUDLEY : The course of carcinomatous development in the pelvis from the cervix through the lymphatics of the parametria on the one hand, and into the corpus uteri and tubes by continuity of surface on the other, has a striking analogy in the precisely similar directions of development now demonstrated for the pelvic inflammations.

Dr. H. P. NEWMAN : When we have to deal with a case of cancer of the uterus we must remember that we are operating upon a dying patient, and time is an extremely important factor. No cancerous case where the disease has advanced to any degree and where the patient is anæmic from loss of blood, or is cachectic to an extreme, will allow of a protracted operation. Hence we must adapt our operative procedure to the individual case, not the case to the operation. The preference should, of course, be given to the vaginal method whenever it can be used as efficiently and as quickly.

The technique of the operation can undoubtedly be facilitated by the use of forceps. Again, we can reach more remote portions of the broad ligament where it is necessary to remove much of this structure. On the other hand, a more thorough and complete operation can be done in certain cases by the combined method—abdominal and vaginal. In short, one should not be wedded to any one method of operating in this serious disease, but be governed by the exigencies of the individual case and the condition of the structures involved.

Dr. EMORY LANPHEAR, of St. Louis : That which I may have to say concerning removal of the cancerous uterus can have but little weight in a gynæcological association, since I must speak from the standpoint of the general surgeon instead of one who limits his practice to diseases of women ; furthermore, as my hysterectomies have been something a little less than ninety-five (the exact number I am

not now prepared to state), my experience can scarcely be compared with that of operators who number their cases by the hundreds. Yet inasmuch as my primary mortality has been somewhat less than ten per cent., and I have had reported recurrence in but one case (concerning which I shall say more presently), some remarks upon the methods I have found most advantageous may not prove wholly uninteresting to the members present.

Being but the guest of this Society, I do not feel at liberty to speak as freely as I would like in condemning the work of any one who would require more than one hour to complete a hysterectomy for cancer even under extraordinary circumstances. In ordinary cases a skillful operator rarely requires more than ten minutes if the clamps are used; twenty minutes is ample time for operation with the ligatures; and from fifty to fifty-five will be all that is needed for the "combined" method of suprapubic and vaginal extirpation. For the very reason that it consumes valuable time, I have not for long attempted to close the line of incision in the peritonæum or to cover the raw surfaces left by cutting the lateral attachments of the uterus, tubes, and ovaries; simply packing the lower part of the pelvis with iodoform gauze (which is allowed to remain forty-eight or seventy-two hours) answers just as well—or at least I have never had a single unpleasant symptom causing me to regret the adoption of the plan—and I am sure I have saved a number of lives by the promptness with which I could thus place the patients in bed. For the same reason I have discarded irrigation after removal of the womb, though there are other causes for not using it, such as its carrying infective material into the peritoneal space; careful, hasty sponging of the pelvis followed by rapid packing is far more satisfactory. Relative to the time when removal of the carcinomatous uterus is advisable there are three points to which I wish to call attention: 1. Every case of cancer of the uterus ought to be given the benefit of hysterectomy just as soon as it is possible to make a diagnosis. Nay, more; I believe that every patient in whom there is even a suspicion of malignancy should be subjected to operation. By such early extirpation most lives can be saved—all prolonged greatly; and with comparatively little danger, because removal of the uterus and its adnexa is a safe operation in the hands of a good surgeon provided the cancer is not far advanced, the cases that die being those already enfeebled by hæmorrhages and other depressing influences which appear late in the history of the disease. 2. Some cases should be operated on even after the trouble has progressed to a marked extent. My rule is to attempt



removal of the diseased tissues whenever there has been no great involvement of the lateral attachments of the uterus, tubes, and ovaries. Implication of the posterior vaginal wall offers no objection to hysterectomy if the womb be still freely movable—that is, if there be little cancerous infiltration in the broad ligaments. Indeed, I have even removed portions of the rectum and bladder, and without any return of the disease, though I believe only about two years have passed since my first operation of such great extent. So with such favorable results I am inclined to operate upon certain cases where a superficial examination would incline one to believe the disease too far advanced for hope of even prolonging life. But we should be very careful in the selection of the operable cases, as these women are the ones who die and give us our high mortality rates as well as possibly influencing some afflicted acquaintance against operation while she may be a very fit subject. 3. A few patients should be operated upon merely as a palliative measure, with careful explanation to the woman and her friends that the work is not expected to do more than give temporary relief. I have already said I have had but one return of the cancerous disease in my work. This was really not a recurrence, but an extension of the trouble, as I knew at the time of operation that removal of all infected tissue was impossible. The lady was sixty-five years of age, cancer far advanced; she was weak from repeated alarming hæmorrhages, septic, and apparently within a few weeks of death, as she was unable to sit up. But the pains were so intense that she begged me to do something to give her even a brief respite. I hesitated between three procedures: (*a*) extensive curettage and packing, (*b*) curettage and cauterization with the Paquelin, and (*c*) enucleation by the method of Pratt. I finally determined upon the last-named measure, and did it without serious loss of blood and without shock. This woman improved very rapidly, the sepsis disappearing, the pain vanishing, and the strength returning with almost startling suddenness. She died some six or eight months later of obstruction of the bowel from extension of the disease to the intestines; but my operation gave her almost complete relief from the gnawing agony of carcinoma uteri, and certainly prolonged her life several months. I believe that in certain well-selected cases this step is justifiable even very late in the disease. In my earlier work I was partial to the use of Polk's clamps; and if there exists any special reason for rapid work, and the disease has not invaded the regions alongside the womb, I still make use of clamps, employing long, strong hæmostatic forceps by choice, but pulling the tissues downward sufficiently to enable me to see ex-

actly what is included within the blades. Unless this can be done I do not think clamps are ever justifiable. Whenever, then, the uterus can not be readily pulled down, and when there is much lateral spread of the disease so that the unvarying straight line of the clamp will not exclude all suspicious areas, the ligature is to be selected. Formerly I used catgut ligatures (as I do now in all intra-abdominal and pelvic work other than this operation), but had to discard them for silk because it was impossible to prevent suppuration in a large percentage of cases ; and I ligated *en masse*, as does August Martin and others ; but lately I have been cutting the circular artery and tying it, then cutting the uterine artery, catching it in hæmostatic forceps, and ligating it just as I would any other vessel in any other part of the body, and lastly throwing a ligature around the ovarian vessels. This is the ideal method of performing hysterectomy, as no other tissues save blood-vessels are caught in the ligatures and left to slough ; and I advise its adoption in every case where it can be put into practice. In conclusion, I wish to give expression to the pleasure I feel on account of the praises of Drs. Etheridge and Henrotin for that which they term the "combined operation," as this is my own invention. Several years ago I published the first description of this method in the *Annals of Surgery*, and subsequently sent a report of several cases and a more careful detail of the technique of "Lanphear's operation" to the *New York Medical Record*. When there is extension of the disease very high in the broad ligament, when the patient is so weak that very rapid work is imperative, and for uterine tumors too large for vaginal extirpation (the woman being in poor condition for abdominal hysterectomy as usually performed), it affords a comparatively safe means of removing the uterus with little shock and no hæmorrhage. I have for several years maintained that by beginning the work below, as for vaginal hysterectomy, carrying the separation up to but not through the peritonæum, and then making section above the pubes, pushing a pair of clamps up from below and quickly including the proper tissues in its grasp, cutting away the uterus, packing the vagina, and closing the abdominal wound—we can remove all diseased tissue with the minimum amount of time and shock and the maximum degree of safety so far as the relief of greatly advanced cases is concerned. And I am naturally glad to hear this operation praised by such prominent gynæcologists as those who have commended it to-night.

Dr. D. T. NELSON, in closing the discussion, said : As to time oc-

cupied doing operations, so the patient gets well, I think it matters little whether we take much or little time. Of course, the less time the better, if only the operation is well done. But the main thing is for the patient to get thoroughly well. Some one recommended that forceps be put on, the broad ligament pulled down, then another bite caught, and so on. That is simply the method of applying the suture, only the suture is always applied immediately beyond the forceps.

Official Transactions.

T. J. WATKINS, *Editor of Society.*

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## TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, January 2, 1896.

The *President*, WILLIAM H. PARISH, M. D., in the Chair.

*A Report of Two Years' Work at the Preston Retreat.*

BY RICHARD C. NORRIS, M. D.

(See page 137.)

*Menorrhagia and its Rational Treatment.*

BY G. BETTON MASSEY, M. D.

(See page 201.)

### DISCUSSION.

Dr. C. P. NOBLE : It seems to me that the conclusions to be drawn from this paper are, first, that we should substitute the term menorrhagia for dysmenorrhœa ; second, that all dysmenorrhœa is due to endometritis ; and third, that it can all be cured by electricity.

Most gynæcologists have been driven to look upon these conditions in a very different way, and the causes of pain at the menstrual periods are certainly very much wider than indicated by Dr. Massey. So far as my own observation goes, I think that in the greater number of the cases in unmarried women the trouble is due to defective development. The uterus is under normal size, not developed, and fre-

quently the ovaries and tubes are likewise improperly developed. In such cases, as a rule, the whole body is imperfectly developed. That is one broad class of cases. Some of these cases have endometritis, but not the majority of them. Another very large group of cases is not due to uterine trouble at all, but to diseased uterine appendages. This class was not mentioned by Dr. Massey. We have in addition, in my judgment, certain cases of obstructive dysmenorrhœa due to flexion or to inflammation. Dr. Massey's remarks cover a very small part of the field.

Likewise the question of the new term, menorrhagia. We all recognize that dysmenorrhœa is a bad term, because it substitutes the symptom for the disease, and it seems to me the term menorrhagia is equally to be condemned for the same reason. What we should treat in all these cases is the disease which makes the patient ill, and not the symptom *pain* at the menstrual period. The idea of using this one symptom to give a name to this group of morbid conditions it seems to me is very faulty.

Dr. JOSEPH PRICE: From a clinical point of view my experience has simply been this: In so-called dysmenorrhœas, at present we find they are overtreated by one class of men or by another—either by the operative class of gynæcologists or by the non-operative class. I know very well that you take a large group of such cases under treatment; they are trotted around over the world—one winter in Florida, the following season, for a change of treatment or an advance in therapeutics, to the south of France or Switzerland; that this whole group of cases, if they marry before the local treatment begins, usually conceive and bear children if they marry clean men. Of course, if they marry clap-stricken men we know what follows in ninety-nine cases out of a hundred, but they usually conceive. I remember very well some years ago of watching among my own friends a group of over twenty young physicians and friends. Some of them married patients that I had some knowledge of; one in particular had had very harsh treatment at the hands of a former gynæcologist by means of the lateral and fore-and aft incisions then practiced. She married a perfectly spotless man of this town and she has borne many children since. The treatment was in the hands of a man doing fine abdominal work, but his local treatment of the cervix was simply barbarous. This has left her a weak point from a retentive point of view in her gestations. I find more mischief is following heroic treatment than the let-alone treatment. I am content to remain rather silent as long as electrical treatment remains in the hands of men thoroughly

clean and cautious, and not too heroic ; more mischief has resulted from the use of the curette in the hands of the heroic gynæcologist than from the electrician. The endometritis existing in these cases may be due to a small cystoma or small dermoids ; not rarely the uterus is quite as clean, and there are quite as positive indications for curetting her tongue as her uterus.

I simply rise to express myself plainly as to the present harsh treatment of so-called dysmenorrhœa. All women have suffered, from Eve down, from some menstrual pain and disturbances, and very rarely is there a local lesion to account for it.

Dr. GEORGE ERETY SHOEMAKER : The reader of the paper would have added to the clearness of his presentation if he had told us how he diagnosed endometritis for the purposes of his report. It is not the experience of many men, I feel confident, to find endometritis present in any appreciable degree in the vast majority of young women with dysmenorrhœa who have had no specific pelvic infection. It seems to me that we would require some definite knowledge that there was an inflammation extending into the endometrium before we could receive any such statement.

In regard to the neurotic cases to which he has alluded, the treatment advised by vaginal applications seems to me to be unwise. If a case is absolutely determined to be neurotic in type, it is very much wiser to devote attention to general measures, and there are good reasons for omitting all pelvic treatment. That in the unmarried there are a considerable number of cases of dysmenorrhœa which are either neurotic or due to general debility is shown by the very marked improvement which can be made in most cases by general treatment without any examination whatever of the pelvic organs. The examination should be made, if proved to be needed, under ether, and it seems to the speaker, at least, that treatment in young girls for pain of this kind should be confined, if possible, to such as can be carried out at a single sitting while under the anæsthetic. This should not always be dilatation and should not always be curetting, but there are cases in which one or the other, or both, will give excellent results. That class of cases which is known as membranous dysmenorrhœa is notoriously difficult of cure by any method ; but certainly the only method which has received much indorsement at careful hands has been the use of the curette and the entire rejuvenation of the unhealthy membrane, and this *repeated more than once*.

Of course the nervous element in the disease must be duly regarded.



Dr. J. M. BALDY : Dr. Massey states that a number of these cases were due to neurotic elements. I think he would be more correct if he said the vast majority are due to this and are not due to demonstrable lesions. It is a rare thing that a lesion can be demonstrated by a physical examination in an unmarried woman suffering from dysmenorrhœa. When neoplasms are present they are, as a rule, free from dysmenorrhœa. I never examine an unmarried woman simply because she has dysmenorrhœa, for, as a rule, I feel no wiser after the examination than before, and do a considerable amount of moral harm. I think the curette has proved in this class of cases to be almost an absolute failure. I can not say conscientiously that in the past ten years I have seen two or three cases cured by it.

As to the question of endometritis, we could not diagnose this, especially in young unmarried women, from the fact that they have leucorrhœal discharges. A great many women with leucorrhœal discharge reveal perfectly healthy mucous membrane on curettage.

The question of dilatation continuously arises, yet I think there is no reason for dependence upon this method. As to permanent cure, the patient will usually have considerably less pain at the first period after dilatation, the next month more pain, three or four months later as much pain as ever. I have repeated this experience several times with women.

I think any one who has studied closely the cases of dysmenorrhœa of the membranous form will be struck by the markedly neurotic condition of these women—so marked that no one can say in what category to place them. The disease is unquestionably a neurotic one. The curette is of no service. Complete absolute cutting away of membrane after several months' interval has been followed by complete failure in two or three of my cases. Probably electricity is as good as anything else. This class of cases belongs more to the neurologist than to the surgical gynæcologist. I feel daily more inclined to refer them to the neurologist. I do not believe that in the electrical treatment the good is accomplished by any local effect; I think the general soothing effect, if both electrodes are applied externally, is the result, and is as useful as if the electrode is applied to the uterus or in the vagina, which is an unnecessary humiliation to women. The local method also adds another element of danger—that of sepsis in the hands of a careless man. I believe there is entirely too much treatment of dysmenorrhœa, which results in no good to the woman, and it has resulted in a very considerable amount of harm both in the way of infection and in the moral effect.

Dr. C. P. NOBLE : My remarks on this subject were rather upon the question of classification than upon my own experience in the treatment of dysmenorrhœa, but, as the discussion has turned on that point, I wish to say something about treatment.

In the neurotic class of cases I agree entirely with what has been said—the less done in the pelvis, the better it is for the patients. That is a lesson I was taught before I began to practice. Consequently my own experience with the local treatment of neurotic cases has been very small. I have always treated these cases in a general way. The class of cases in which I have used dilatation particularly is those in which I believe the dysmenorrhœa is distinctly obstructive. In other words, while I do not believe the original theory of Sims, that dysmenorrhœa is due to ante flexion in almost all cases, I do believe that in one class of cases the dysmenorrhœa is due partly to ante flexion, partly to a maldevelopment of the uterus, with narrowed canal, in which the pain is distinctly spasmodic and cramplike in character. These cases, in my hands, have been permanently relieved by careful dilatation and curettement. Of course I speak of selected cases. Months and years afterward many patients I have known have remained permanently benefited. The dilatation is the major thing in these cases. The class of cases in which the curette does good is the one in which there is genuine endometritis; curetting in this class cures permanently by curing the endometritis. In those cases in which the trouble is due to maldevelopment the best way to treat them is to begin when they are young girls and build up their general health and vigor. If treatment is not commenced then, I doubt whether a cure will result at all unless they marry and have children. Many of these women have imperfect development of the nervous system, and even of the body as a whole. They are apt to develop neurasthenia and hysteria. Many of them have had chlorosis, and have a permanently damaged vascular system.

Dr. G. BETTON MASSEY closed the discussion by saying: I hardly think Dr. Noble answered certain questions which I put. He tells us that he uses dilatation, but he does not tell us, in answer to the first question I put, whether he has ever encountered an accumulation as a cause of the pain. Physics teaches us that there can be no obstruction without accumulation. Secondly, has he not encountered stenosis and accumulation without pain? And thirdly, whether he had ever passed a sound at a time he thought he had obstruction and found the uterus larger than ever? These are the questions I want answered. I think when they are answered he will agree that

the conclusions given by him satirically will have to be drawn in earnest.

Dr. SHOEMAKER : How many times has Dr. Massey passed a sound in these cases during menstruation?

Dr. MASSEY : In three cases in the height of pain during cramp. Each time the uterus would certainly admit the joint of the little finger, though virginal. I do not mean to say that this is universal, but it so happened in these three cases that I examined or treated under these circumstances. The facts are what we want, not twenty years more of wrong treatment based on theory.

As Dr. Price said, there has been over-treatment; but we should not let the pendulum swing so far as to have no treatment. We should not fail to diagnose these cases as due to endometritis when there is endometritis. The reason I said these cases were nearly all instances of endometritis is not that I had curetted and found a great quantity of granulation tissue, but simply from the fact that there was continuous muco-purulent discharge before and after periods; some were examined by speculum and they showed that the discharge was from the uterus. A certain amount of discharge is as natural to the uterus as it is to the nose, as one of our deceased leaders said here, but not free muco-purulent discharge. No uterus can have this muco-purulent discharge without catarrhal disease, any more than we can have a muco-purulent discharge from the nose without rhinitis. I know at least a dozen of the cases alluded to in this paper well enough to be sure that they were perfectly pure girls, and yet the uterus was in a relatively bad stage of inflammation, shown in some instances by erosion of the os. The discharge, erosion, and an enlargement not corresponding with their state of life was the basis of the diagnosis of endometritis. I, of course, do not say that the endometritis was the sole cause, but in nearly nine tenths it was the most prominent factor, the exact figures in this list being 87.5 per cent. There has been much said by all of the speakers with which I agree, and some of it agrees with what I said in the paper, particularly that about non-internal treatment in neurotic and constitutional cases.

*Gonorrhœal Labor.*

BY H. LEAMAN, M. D.

(See page 174.)

DISCUSSION.

Dr. M. PRICE : There are two or three points in regard to the cases of Dr. Leaman about which I would like to ask as to the result. It

has been my experience that probably half the gonorrhœal cases thus infected before labor are compelled to suffer the removal of the appendages within a year after labor. I would like to know the results in the cases reported to-night. I have had three cases within the last two years, all in my own practice ; in each of them I treated the husbands prior to the delivery of the child, and after the delivery I treated the mother for gonorrhœa. Two of these cases have had the appendages removed for double pus tubes since the labor. I would like to know the outcome of these cases of Dr. Leaman's—whether they are all right, whether recovery has been permanent, leaving no lesion behind. The most virulent form of gonorrhœa that I have had to treat is in those cases contracting the disease during convalescence from labor ; the risk to the mother is far greater at this time than any other, and if she recovers without the removal of her appendages or the permanent crippling of them she will be a lucky woman.

This has been my experience for some five years. I have carefully noted the condition of women who are associated with men of the stamp who expose themselves to contagion or infection of that kind. They almost invariably suffer from tubal and ovarian gonorrhœal trouble, which in most cases has led to the removal of these organs.

Dr. NORRIS: I should like to contribute my testimony as to the value of the ante-partum sublimate douche as a means of preventing ophthalmia. I have been foolish enough to allow myself to rely upon the ante-partum douche of bichloride of mercury. The results in my hospital experience are given in the report read this evening. In my private practice, in one patient whom I knew to have had gonorrhœa some four months before she was delivered, bichloride douches were given throughout this period. I thought the ante-partum douche would be all-sufficient. I used it thoroughly and efficiently ; nevertheless, the child had purulent ophthalmia. It was at once placed in the hands of a specialist, yet it lost one of its eyes.

When we have gonorrhœa in a pregnant woman it is, I believe, the physician's duty to use Crêdê's method of instilling nitrate of silver in the eyes immediately after the child's birth. It seems to me if the routine and systematic use of nitrate of silver were made in all suspicious cases we would save many eyes that otherwise would be lost. Statistics of hospitals where this method is employed are simply unanswerable.

As regards gonorrhœa in its bearing upon the mother's puerperium.

It is well known that so-called puerperal rheumatism more frequently occurs in women who have contracted gonorrhœa during their pregnancy; in other words, the joint symptoms which occur in the puerperal period, in many instances, are akin to gonorrhœal rheumatism, and this period seems to make the patient more susceptible to the gonorrhœal virus.

This latter fact is also true when the infection occurs toward the end of the puerperal period. A recent case is an example. The woman was delivered by myself with the most scrupulous aseptic precautions. Her labor and convalescence were normal. I treated her husband for gonorrhœa, contracted during his wife's lying-in, and I cautioned him of the grave dangers to his wife from his disease, although apparently cured. Six months later I removed successfully from this woman two pus tubes. At the time of the operation her pulse was 130 and her temperature 103° F., and she was suffering from joint symptoms which were thought to be rheumatic, but which at once disappeared with the removal of the offending tubes. Such cases warrant the belief that the puerperal period increases a woman's susceptibility to the gonorrhœal poison.

Dr. JOSEPH PRICE: It is interesting to listen at present to a discussion on gonorrhœa. There is nothing in this discussion which would disprove the statements of Noeggerath some years ago. His paper was full of wisdom; its only fault was that it shot over the heads of the Society at that time by a period of ten or fifteen years. No one was prepared to accept his statements. Every one questioned them, and one even went so far as to say that if true a copy should be put on every Sunday-school table in the land. It is a great pity the paper has not been disseminated for that purpose. Dr. Leaman has shot over the heads of the profession this evening. He takes a very broad view of the subject—even broader than Noeggerath took. The report of his cases will bear good fruit. The cases are rather interesting and typical of a huge group of cases suffering from just the same complications and worse. The surgical profession have recognized the fact of gonorrhœal sepsis and gonorrhœal infection. For many years, while I was a student, this question was doubted by all surgical teachers at that time; now there is scarcely a question of doubt. All practicing physicians recognize forms of gonorrhœal sepsis in both men and women, and what has been said in regard to post-puerperal sepsis is very true—women are thrice more susceptible to gonorrhœa than they were before. There is a very favorable state of affairs for gonorrhœal sepsis, and men are prone to contract a gonorrhœa, or



even a specific vice, during the lying-in period. This is one of the strongest arguments against a private hospital. Abdominal surgeons know that five per cent. either get a chancroid or gonorrhœa while the woman is in the hospital for either pus tubes or cystoma, which cases come back for the treatment of acute specific troubles which do not antedate the section, then return for hernias. More patients return for constitutional syphilis contracted after a section than return for hernias; that is so in the old Philadelphia Hospital Dispensary, and there we have an opportunity of watching not only our own cases, but the cases of others. Abortions are very much more common when gonorrhœa antedates the first lying-in experience than in conceptions following. I think in young women contaminated early in marriage primary abortion is very common; usually in the second or third conception they go to term, and, following two or three, there results sterility, then the ectopic pregnancy. I have seen two cases within only a week. I might include one going into the hands of the coroner.

I saw two cases in a neighboring city of prolonged sterility due to gonorrhœa; then inevitable ectopic gestation and death in both cases. It is interesting in this connection to include this group of cases with the interesting group reported. We can not question the character of complications when reported by a clinical observer of Dr. Leaman's type. These are clinical facts; you can not brush them aside. I long ago stated, in discussing the saving of eyes, that if the proper precautions were taken in all maternity work, we could reduce blind asylums from five to one; I have preached that doctrine throughout our State and national societies, and at present I feel that the Credé method which some employ in treating the tender little eyes of the newborn infant is barbarous and useless; that the seat of the disease should be treated before the infant's eyes are infected, and not wait until the mischief is done. If it exists, I see no reason why we should not prepare that vagina and cervix for a clean and non-contaminating delivery of a child first thoroughly and completely as for an abdominal section, or for plastic operations upon the bladder, cervix or perinæum.

Dr. LEAMAN: I simply brought these few cases here to-night as typical, with the hope that there would be some observations made on the subject. I believe these three cases to have been acute gonorrhœa, probably the first attack, and occurring late in their pregnancy. It is an unfortunate condition of society at the present time that man can not be decent for nine months; therefore his wife has to suffer.

But it is comforting to know this has occurred only three times in quite a large experience—only three cases in nine years. These cases were well marked, and the effort at labor was so strong that perhaps many physicians would have clapped on the forceps, thinking there was something wrong, and probably would have had a delivery and a severe hæmorrhage following. These three cases of acute gonorrhœa I believe to have been first attacks. Some false pains, I think, are frequently mild attacks of gonorrhœa occurring in women who have had previous attacks similar to recurring attacks in the male, which become mild by repetition.

As to the moral bearing of the question of labor, I hope to present a paper on this at some future day, presenting the whole subject of the moral environment of the infant.

Official Transactions.

FRANK W. TALLEY, *Secretary*.

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## TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

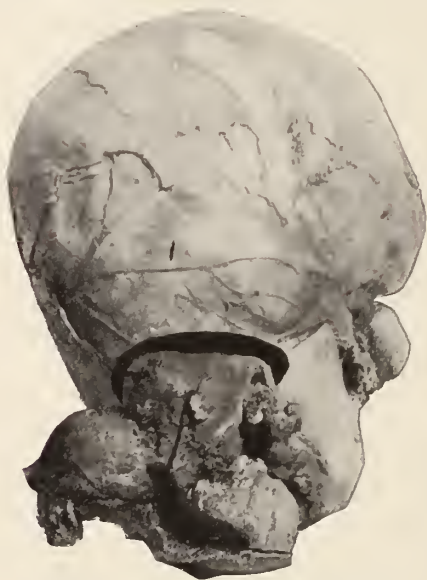
Stated Meeting, December 15, 1895.

The *President*, HENRY C. COE, M. D., in the Chair.

### *Intraligamentous Fibroid; Bicorned Uterus.*

Dr. GEORGE H. MALLET presented a specimen which he had removed on the Saturday previous. The patient was forty-three years old and unmarried. She was perfectly well until eight months ago, when she began to suffer pain in the abdomen and back. The pain recurred every three weeks and lasted a day. Later the pains became more frequent, and lasted for several days and nights. Upon examination, a large, smooth, ovoid tumor, corresponding in size, location and touch to a pregnant uterus of seven months, was felt in the abdomen. She stated that she had menstruated profusely a few days previous to operation. The breasts contained colostrum. Upon opening the abdomen, the tumor so closely resembled a pregnant uterus that Dr. Coe, whose assistance and advice were invaluable, deemed it inadvisable to proceed with the operation until another vaginal examination had been made. In the absence of the ordinary signs of pregnancy, the diagnosis of intraligamentous fibroid was de-

terminated upon; a transverse incision was made across the tumor and the specimen presented was enucleated with difficulty and with the loss of much blood. The tumor came from the anterior and left



Specimen of intraligamentous fibroid.

side of the uterus and was situated between the bladder and that organ. The hæmorrhage was so profuse and the raw surface so extensive that it was thought advisable to do a hysterectomy. After removal, the uterus was found to be bicornous.

The pelvis was packed with iodoform gauze and drained by the vagina. The patient gives promise of making a good recovery.

The interesting points in the case were its resemblance to a pregnant uterus the difficulty of the operation and the question of drainage.

*Hysterectomy for Multiple Fibroids; partly Retroperitoneal; Rupture of the Sigmoid Flexure; Recovery.*

Dr. BRETTAUER presented a specimen which he had removed on October 12th from Mrs. O., thirty-nine years old; she had had one child fifteen years ago. Several years ago her physician recognized that she had a fibroid growth of the uterus, but, as it gave rise to no symptoms, no treatment was instituted. During the last five

months it grew rapidly, causing considerable difficulty in defecation and micturition. At the same time, menstruation, which had been regular and rather scanty, appeared triweekly and became very profuse. Operative interference was considered necessary.

Physical examination disclosed nothing abnormal save a systolic murmur, which proved to be hæmic in nature. Multiple fibroids of the uterus could be felt as high as the arch of the ribs, filling, at the same time, the entire pelvis. The cervix could scarcely be reached by the examining finger, lying high behind the symphysis pubis.

A few days before operation the bowels were thoroughly emptied from above, and on the day of operation a high stimulating enema was given.

On opening the abdomen, the tumor proved to consist of two parts, of which the intraperitoneal one was easily removed, after the separation of the bladder and tying off uterine arteries, by amputating it above the cervix.

The second part of the tumor—a mass of the size of a child's head, which was attached to the cervix by a thin pedicle—was tightly impacted in the pelvis. Its upper surface was covered by peritonæum. At the brim of the pelvis the sigmoid flexure ran across its posterior surface. In the attempt to free the gut from the tumor, it was torn for four fifths of its circumference, and almost a pint of the stimulating enema entered the peritoneal cavity; this was removed by dry sponges as far as possible. With great difficulty it was now possible to develop the pelvic tumor.

The intestine was now sewed by Wöllfler's method, the peritonæum necessary to cover the sutures being taken from the peritonæum which ran over the apex of the tumor. The stump of the cervix was trimmed, little cervical tissue remaining. The pelvis was packed with gauze, draining through the remains of the cervix. The injured coil of intestine was separately enveloped in gauze, the ends of which were carried through the lower angle of the abdominal wound.

The recovery was uneventful, the bowels being moved on the ninth day. According to a letter from the patient's physician, dated November 27th, the abdominal wound was entirely healed, but there was still considerable discharge through the cervix.

#### DISCUSSION.

Dr. H. J. BOLDT thought an interesting feature of Dr. Mallett's specimen was its resemblance to the pregnant uterus. It recalled a

recent case of his own, a second one of this kind. On opening the abdomen in these instances he thought he had to deal with a pregnant uterus, and it was fully five minutes before he could make up his mind that his original diagnosis of myofibroma was correct. A sound resembling the placental souffle could be heard on auscultation in his cases. Such cases showed that the diagnosis between pregnancy and myofibromata is not always easy.

Regarding Dr. Brettauer's case, he knew of no operation in the whole province of surgery likely to prove more difficult than removal of retroperitoneal tumors of the uterus. Sometimes one is apt to tear intestines, under the impression that one is dealing with adhesions. Regarding the management after enucleating the tumor, he would pack the cavity with iodoform gauze, or, if it could be accomplished, close the pocket by using buried catgut sutures, but the latter was hardly possible when large tumors were removed. The operation usually was long, and one had to be prepared for emergencies. Hæmorrhage is profuse, and he thought it best to tie the uterine arteries before beginning enucleation.

*Large Submucous Fibroid of the Uterus developing Rapidly after the Menopause.*

Dr. G. W. JARMAN presented a specimen which seemed of special interest in connection with the subject under consideration. The specimen was a submucous fibroid of the uterus removed from a patient in the New York Cancer Hospital one week ago.

The history was as follows: Miss W., aged forty-nine, has always enjoyed good health.

Two uncles and an aunt died of tumors, but the patient is unable to give any information as to the location or character of these tumors. Her sister was recently operated upon by our President, Dr. Henry C. Coe, for a fibroid of the uterus. She has never had children or miscarriages.

Her menstruation began at fourteen, was perfectly regular, flow lasting from three to five days, normal in amount and unaccompanied with pain. Last menstruation eleven months ago, since which time she has not noticed any metrostaxis of any character. Has no pain or discomfort. Bowels are regular and has had no dysuria or frequency of micturition. Her appetite is good and she is fairly well nourished, but thinks she has lost some flesh during the last three months. She now weighs one hundred and ten pounds. The patient thinks that she has noticed some enlargement of her abdomen for the



past twelve months, but as this was greater at one time than another, assumed that it was distention of the intestines with gas, until the latter part of September, 1895, when she discovered a hard tumor in the lower part of the abdomen. She insists that it was not there before this time, and that it has grown rapidly since she discovered it. It has never caused her any pain or discomfort. No vaginal examination was made, the hymen being very much thickened and its opening barely admitting a large uterine sound. *Per rectum*, however, the cervix uteri could be felt high up in the pelvis, and a fibroid tumor of the uterus, about the size of the full-term foetal head, diagnosed. There was no difficulty in its removal, which was accomplished by the suprapubic method I present the specimen because it seems to me to be somewhat unusual.

The indication for operation was a rapidly growing tumor of the uterus beginning after the menopause. This can not certainly be proved, inasmuch as the patient was not examined during her menstrual life; but if it existed, it not only did not give any of the usual symptoms, such as hæmorrhage, etc., but also it must be remembered that though the patient was very thin, she only noticed it about two months since.

The possibility of the tumor being malignant was taken into consideration. The pathologist's report has not yet been obtained, hence I can not this evening give any information as to the character of the tumor.

#### DISCUSSION.

Dr. JOHN BYRNE thought the whole history of Dr. Jarman's case, and especially the rapidity of the growth of the tumor, would lead one to suspect that it was not benign.

Dr. LE ROY BROWN was reminded by Dr. Brettauer's case of one of rupture of the sigmoid flexure during an operation at which he assisted last year. The entire pelvis was filled with exudate, pus tube, and abscess of the ovary, and on removing the uterus along with the diseased tissues it was found that the sigmoid flexure had been torn nearly across low down. The tear was so extensive that only imperfect repair could be made. He doubted whether Lembert sutures were, or could have been, put in with any degree of accuracy. The entire pelvis was then packed with gauze, and the patient recovered without trouble further than that about the sixth day fæces were passed through the vagina. The gauze was removed little by little as the opening closed, and the patient was finally discharged cured, passing her fæces normally. This case and Dr. Brettauer's would

seem to indicate that in injuries of the sigmoid flexure the outlook was fairly good if the cavity were packed with gauze and there were free downward drainage.

*Multiple Uterine Fibroids ; Pregnancy ; Hysterectomy.*

Dr. MALCOLM McLEAN presented a uterus containing multiple fibroids and ovum partly expelled. The patient was thirty-three years of age, a nullipara, and had been married three years. She gave a history of irregular menstruation for a year and a half. A year ago she had gone three months and a half without menstruating, then regained this function under the care of Dr. E. L. Cocks, and the past year had been more or less irregular. She again ceased to menstruate early last August and was examined by Dr. McLean on November 21st. He found the uterus apparently anteflexed and as large as the organ at the sixth or eighth week of pregnancy. Projecting in the direction of one ovary there seemed to be a tumor the size of two fists, somewhat nodular, not solid enough to suggest a fibroid or myoma, and believed to be ovarian. The question of pregnancy arose, but the mammary and other signs, aside from the facts mentioned, were absent, and it was decided to operate. The abdomen was opened November 30th ; the uterus was found to contain a mass of nodular fibromata. The right side was smooth, globular, and suggested natural uterine tissue. Before proceeding further, they discussed the probability of its being a pregnant uterus, but it was decided that under the circumstances it would be best in any event to remove the mass. This was done without meeting with any unusual difficulty. The patient was doing exceedingly well. The uterus contained an ovum of about the third month. This was partly expelled by muscular contraction after removal of the organ and incising the cervical canal.

Dr. McLean asked for criticism as to the propriety of extirpating the uterus under the circumstances presented. The patient had expressed a desire for operative relief, even to the extent of removing the uterus and ovaries, if necessary.

DISCUSSION.

Dr. W. T. LUSK had arrived too late to hear the entire history of the case, but he was reminded of one regarding which he was consulted by letter. The physician wrote him that the patient was pregnant and that there was a large fibroid in the walls of the uterus, and he wished to know what Dr. Lusk would regard as the best treatment

in the case. Dr. Lusk advised him to remove the uterus, but later wrote of Hofmeier's report which had led him to look up the literature for two years, in which he had found that opinions differed as to the expediency of operating, but, on the whole, weight of evidence seemed to be in favor of extirpating the uterus. However, the doctor made up his mind to allow pregnancy to go to term, and had written Dr. Lusk recently that labor had terminated without any trouble whatever, the mother perfectly well, child healthy.

The PRESIDENT suggested as another point for discussion in connection with these cases the propriety of allowing pregnancy to proceed until near term and then doing a Porro or hysterectomy.

Dr. W. R. PRYOR thought that where a myomatous growth offered no obstruction to the birth of the child there was absolutely no indication for operating. On the contrary, it was known that myomatous nodules, even after having attained to great size during pregnancy, often permitted the uterus to empty itself at full term and then decreased in size. Indeed, we saw large numbers of women with nodules in the uterus causing no hæmorrhage, and no symptoms after labor. Certainly the mere presence of fibroid tumors in the walls of the uterus was no indication for removing the uterus and thereby destroying the contained fœtus. In Dr. McLean's case the fibroids were in the cervix, would have obstructed labor, and therefore an operation was demanded.

Dr. R. H. WYLIE mentioned a case in which he had removed the uterus with multiple fibroids, including an intraligamentous tumor down in the pelvis, and found the child still living after tying off the stump in the ordinary way. The condition present would, in this particular case, have prevented delivery anywhere near full term; but one should always consider the possibility of carrying the patient along safely to near term, and delivering then, or possibly of removing the uterus with a viable child.

Dr. H. L. COLLYER thought there were a number of cases of fibroid tumors of the uterus which need not interfere with the progress of pregnancy in the least, but Dr. McLean's could be excluded from this list. He recalled one case in particular in which the woman had borne five children, and she still carried a uterine fibroid about the size of a child's head. Of course it interfered some at the time of labor, but by proper management the obstruction could be overcome. In relation to Dr. McLean's case, the only doubt which arose in his mind was whether abortion should not have been induced before doing the operation.

Dr. McLEAN said he agreed with Dr. Pryor. Regarding his own specimen, it should be remembered that we were now looking at it removed from the patient, and with the ovum expelled. When the uterus was in the abdomen, and the ovum within the uterus, it was very difficult to determine the existence of pregnancy. He had on previous occasions opened the abdomen where the uterus was pregnant, and could say that in this instance it was more than usually difficult to say whether the uterus contained a fœtus, and on this point there was a difference of opinion among those present, the fact not being established until the specimen was examined after the operation was completed.

*Indications of Treatment in the Case of Uterine Myomata.*

By GEORGE T. HARRISON, M. D., NEW YORK.

(See page 198.)

DISCUSSION.

Dr. W. T. LUSK could indorse the paper in its entirety. Operations had now become so simple, safe, and the mortality so small, that there was a temptation to interfere in every case of fibroids, even though the patient might not be complaining. We were apt to forget that patients, including young women, often went along for years, carrying small fibroids, without any symptoms. Yet he had seen uteri presented at this Society with small tumors and a history which in itself hardly seemed to justify operative interference. He agreed entirely with Dr. Harrison that it was a serious matter for a woman to lose in her early years her ovaries and uterus and with them her youthfulness. One young patient, operated upon by a member of the Society, had come to his clinic for a vaginal discharge. He removed a ligature from the vaginal roof, and the discharge ceased. The point of interest was the fact that the husband came later, and was very much dissatisfied, for his marital life had been rendered extremely distasteful to him. He finally turned her from his home, and she was seeking admission to some charitable institution to avoid starvation. Such a possibility had to be borne in mind before undertaking hysterectomy in these cases unless it were demanded by the urgency of the symptoms.

In his experience most myomatous tumors of the uterus ceased to grow after the climacteric period, and shrank in size. He had been very much impressed, two or three years ago, on hearing the statement made that if such tumors were left they were apt to undergo sarcomatous degeneration. He had wondered whether he had done

right in waiting and watching these cases instead of operating. But thus far not one of the many cases seen by him had undergone sarcomatous change.

The PRESIDENT said that Dr. Lusk's last remark had suggested another interesting point for discussion. He had known of two or three cases in which myomatous tumors underwent sarcomatous degeneration after the menopause. One was in a patient who had been under the care of the late Dr. Fordyce Barker a number of years, and afterward had come to him. In the course of time the tumor became malignant, grew rapidly, and was removed, but recurrence took place and the patient died.

Another point for discussion was the propriety of operating simply because the tumor existed, but caused no marked symptoms.

Dr. JOHN BYRNE said that in anything he might have been inclined to say he had been anticipated by others, especially Dr. Wylie. He was satisfied that abdominal hysterectomy for fibroids was being done too frequently. He had operated a number of times himself, but only where he saw no other possible way out of the difficulty. He would merely remark that in cases in which the uterus was involved directly, and abdominal hysterectomy was contemplated, much trouble would be saved by doing the vaginal portion of the operation first. It was remarkable where this was done what an amount of labor was saved during the abdominal steps of the operation. In at least two cases out of four or five in which he had thus operated he was satisfied that he could not have completed the operation in a satisfactory manner had he not first secured the uterine arteries from below. With the mass so firmly fixed down in the pelvis, it would have been extremely difficult to reach the uterine arteries from above. Some might criticise the method as involving two operations instead of one, but if it were borne in mind that the vaginal portion of the operation was done by cautery, it would be seen that it involved no additional risk whatever to the operative work as a whole. He regretted having arrived too late to hear Dr. Pryor's remarks. By the diagram on the board he was led to surmise that some reference may have been made to a method of doing abdominal hysterectomy by ligating all the vessels on one side from above downward, severing the cervix, securing the uterine artery on the opposite side, and continuing the dissection upward to completion. A short time ago, while conversing with some prominent gynæcologists, he (Dr. Byrne) remarked, by way of correcting a statement touching certain claims to authorship or originality, that to Dr. Pryor was due the distinction of



suggesting this method. If he was mistaken he would like to be corrected.

Dr. BOLDT could find little to object to in what had been said by the different speakers. Dr. Pryor had answered one point in relation to hernia about as he would have answered it himself. He did not think, however, that simply tucking the stumps of the broad ligaments down into the vagina was quite sufficient. He believed in sewing these stumps into the vagina in such a way as to make them entirely extraperitoneal, in the same manner as he did in vaginal hysterectomy. He had seen no case of vaginal hernia follow total extirpation of the uterus.

As to the different methods of operating, or whether the operation should be done at all in any given case, he thought it a matter of conscientiousness and personal opinion. For his own part he did not believe we should operate simply because the patient had a tumor; but when the tumor began to cause symptoms of severity, and when the patient's occupation was interfered with, we should operate. The question of operation, therefore, depended upon circumstances.

Regarding sarcomatous degeneration occurring in these tumors, he thought it was very rare, although it did take place occasionally. As to operating in cases of pregnancy, he would wait if it were practical until the child had become viable. He recalled a case in which he had strongly advised operation, but the patient declined it, and was subsequently delivered safely of a living child, after which the fibroid began to shrink. His reason for advising operation was that about the fourth month the tumor had begun to increase rapidly in size. The patient had since had another child, and the fibroid still remained, but of smaller size than before labor.

The PRESIDENT said he could recall only one such case in his own experience. He thought that more stress might be laid on the fact that the removal of fibroid uteri was not always so easy as it had been represented. The enucleation of extraperitoneal fibroids especially might prove to be very difficult, giving rise to fatal shock even when the operation was performed rapidly and with slight loss of blood.

Dr. HARRISON made some closing remarks. He did not recollect having seen a case of uterine myoma undergoing sarcomatous degeneration. Referring to Dr. Pryor's remarks, he had had one case in which there was a tumor of the breast and myoma of the cervix coexisting. The patient allowed him to remove the latter but not the former tumor.

ARTHUR M. JACOBUS,

Official Transactions.

*Recording Secretary.*

## THE STATUS OF GYNÆCOLOGY ABROAD.

## RUSSIA.

*Cœliotomies and Symphysiotomies in the City Hospital of Riga.*

M. FREYMAN (St. Petersburger medicinische Wochenschrift, November 9, 1895) reports the results of one hundred capital operations performed during the last five years. Of these, ninety-seven were cœliotomies and three symphysiotomies.

The cœliotomies were: Seven for ectopic gestation, with four deaths; two Cæsarean sections (cne a Porro), with one death; eighteen hysterectomies for fibroma, with six deaths; sixteen operations on the appendages, with one death; ten ventrofixations, with no deaths; forty-four ovariectomies, with three deaths; making a total of ninety-seven cœliotomies, with fifteen deaths. The operations for ectopic gestation and for uterine fibroids were the most fatal.

The first case of extra-uterine pregnancy was that of a woman of twenty-eight years who entered the hospital with an eight months' living foetus in the abdominal cavity. She was septic on admission. The child was removed from the cavity dead, and the mother died six days later from sepsis.

In the second case the foetal sac was found firmly attached between the left broad ligament and the sigmoid flexure. In attempting to remove this a severe hæmorrhage occurred from the separation of the placenta, and, notwithstanding the tamponing with iodoform gauze, the patient died three days later.

The third fatal case of ectopic gestation was a tubal pregnancy. The diagnosis had been made, but the operation deferred. Rupture occurred during the night, and time was lost in preparing for the operation. The pelvis was filled with blood. The hæmorrhage was checked, but the patient died four days afterward.

The last fatal case of this kind was that of a woman of thirty-two years. She had a six months' living foetus in the abdominal cavity. The foetus was removed, the placenta left in the sac, and this was stitched to the abdominal incision. The patient did well, and the placenta was removed some days later. On the eighteenth day she died suddenly, with some brain symptoms, probably from embolism.

The successful cases were those of an abdominal pregnancy, when a three and a half months' foetus was taken out and the sac stitched

to the wound and the placenta removed twenty days later. Patient recovered with a moderate hernia.

In a pregnancy occurring in the cornu of the uterus the operation was easy, and the patient made a perfect recovery.

The last case of ectopic gestation occurred in a young woman of twenty-seven years. The uterus was found empty, but the large foetal sac was felt beside it. Upon opening the abdomen, a mature child was found in the right horn of the uterus. It appeared to have been dead but a short time. The uterus was removed, and the stump treated extraperitoneally. The patient made an uninterrupted recovery.

Of the eighteen patients who were operated upon for uterine fibroids, the stumps were treated extraperitoneally and eight died—four from sepsis.

Besides the Cæsarean operation recorded above, the author has performed two others; one upon a woman who was in a profound coma following eclampsia. The membranes had ruptured, and the child showed signs of life. The operation was done without anæsthesia. The child was extracted dead, and the mother died six hours after operation.

The last case entered the hospital in the eighth month of pregnancy. She had suffered for three days with strong but vague labor pains. Upon examination, a firm elastic tumor was found attached to the sacrum, which made it impossible to deliver a child through that channel. Diagnosis of sarcoma of the sacrum was made, a Porro operation was done, and a living child of four and a half pounds removed. Both recovered.

The author performed three symphysiotomies, with no deaths to the mothers and two children saved. The children were mature and large. In the first case, after dividing the symphysis, the author left the child for the forces of Nature to deliver, but was compelled to use the forceps later. This child died. In the other cases he applied the forceps immediately after dividing the symphysis. In the first two cases the symphysis was entirely divided with a probe-pointed bistoury. In the last case the pubic ligament was not cut.

The space gained between the bones of the symphysis by the operation was in the first case four centimetres, increased during the forceps operation to six and a half centimetres, in the second case five and a half centimetres, and in the third three centimetres.

The second patient died sixteen months after operation of intercurrent disease. The author himself removed the symphysis and found the union to be perfectly firm, and this notwithstanding the

fact that the pubic ligament had been divided and no bone sutures had been used. He believed that the anatomical specimen, the symphysis, that he presented was the strongest argument that could be used in favor of the operation.

## GERMANY.

*A Case of Carcinoma occurring simultaneously in Two Portions of a Uterus.*

PASCHEN (*Cent. für Gyn.*, October 5, 1895) writes that such cases described years ago have been doubted, but recent observations have proved that they do exist. However, they are so rare that the author feels justified in reporting the present one. J. Pfannenstiel has collected nine cases from literature and has himself added two. In three cases the body of the uterus and the outer part of the cervix were involved, and in eight cases the body and the cervical canal were simultaneously affected. In three cases the pavement epithelium was carcinomatous; in the other cases the columnar epithelium was involved. In all cases normal tissue existed between the diseased portions. The case reported was that of a woman of forty years who had had six children and three miscarriages. Four months previous to operation she had had a severe hæmorrhage, and it was then that the diagnosis of carcinoma of the cervix was made. The patient was then attacked with pneumonia, and during this time she had several uterine hæmorrhages, which were controlled by packing the vagina with iodoform gauze.

At the time of operation the cervical canal was widely dilated with sharp edges from which protruded soft and bleeding masses like polypi. The uterus was slightly enlarged, but no irregularities could be felt upon its surface.

The uterus and appendages were removed by the vagina, and the patient made an uninterrupted recovery. Upon examining the specimen a large focus of carcinoma was found in the cervix, but it did not reach to the internal os. On the mucous membrane of the anterior wall of the uterus a carcinomatous nodule the size of a pea was found. In the posterior wall of the uterus a still larger focus was found, and three additional nodules were discovered in the region of the right tube.

The author believes that the disease was primary in the cervix, and that the infection of the body was the result of metastasis or by direct inoculation. Particles of carcinomatous tissue could easily

have been pushed into the uterus with the gauze packing. The occurrence of carcinoma in two parts of a uterus simultaneously is a powerful argument in favor of total extirpation as soon as a diagnosis of malignancy is made, rather than a high amputation, as is advocated by some.

In the case reported there was no way of knowing that the uterus was also affected simultaneously, and a high amputation of the cervix would have been worse than useless.

### *Anterior Colpotomy.*

MAX MADLENER (*Münch. med. Woch.*, November 5, 1895) considers anterior colpotomy the most important of recent gynæcological operations. Its introduction and popularity is associated with the names of Doyen, Sänger, Zweifel, Mackenrodt, and Dührssen. The last-named has done most to perfect the technique. Anterior colpotomy is really the name of a group of operations which have in common the incision of the anterior vaginal wall, either transverse or sagittal, and the separation of the bladder from the anterior uterine wall and access to the peritoneal cavity. The opening of the peritoneal cavity is not necessary in every case. The peritoneal fold between the uterus and bladder reaches to a lower point in some patients than in others. In some it descends to a level with the internal os uteri, and in others to a point higher up. Most operators open the peritoneal cavity in performing vagino-fixation. By this method (vaginal cœliotomy) the fundus may be drawn into the incision between the bladder and uterus, and the ovaries and tubes brought into view. The author has operated by this method forty-three times, with satisfactory results in every case. The sagittal incision was used in all but two cases; the advantages claimed are that the hæmorrhage is less, and more room is made than by the transverse. The author used this method eighteen times in movable retrodisplacements of the uterus. In four of these cases there was vaginal prolapse, and in one case there was total prolapse of the uterus; seven times in retroversion with adhesions, thirteen times for retrodisplacement with diseased ovaries and tubes, and four times for uterine myomata.

Of the last forty-one cœliotomies performed for the removal of diseased appendages, fourteen were suppurative. Of this number, about one sixth might have been done by colpotomy. That this small number might have been saved from laparotomy speaks well for anterior colpotomy. Laparotomy will always be considered a dangerous operation because of the attendant shock and the liability of a



subsequent abdominal hernia. If even a small number of patients can be relieved by a safer operation it is a distinct gain.

As before mentioned, anterior colpotomy was performed forty-three times without an accident to bladder, ureters, or intestines.

Combined with colpotomy in these cases, curettage was done twenty-seven times, amputation of the cervix six times, Emmet's operation on the cervix three times, anterior colporrhaphy five times, and posterior colporrhaphy six times.

In none of these patients was there any shock like that observed in laparotomy. The suffering was very little, and in only a few cases was any morphine required. The patients generally left the bed after ten days. But few showed any febrile reaction, and these never went above 40° C. and lasted but a short time.

From the extensive manipulations that the bladder is subjected to, one would suppose that its functions would be interfered with, but this is not the case. In fifteen cases the urine was voluntarily voided with little inconvenience; in the others the catheter was used during the first three days, and in one case it was required for ten days. Slight cystitis occurred in four cases and was severe in one case. A few of these patients said that they were compelled to void urine more frequently than formerly. The passage of the silk-fixation sutures into the bladder has never been observed among these cases.

To recapitulate: In our opinion, anterior colpotomy is a valuable addition to our gynæcological operations. It presents a means of correcting retro-uterine displacements which seldom fails to give permanent relief. It gives access to the pelvic organs by a way less dangerous than by laparotomy, thus facilitating intraperitoneal operations.

#### SWITZERLAND.

##### *Alexander's Operation.*

SIEGFRIED STOCKER, of Lucerne (*Correspondenz-Blatt für Schweizer Aerzte*, December 15, 1895), reports thirty-seven cases that he had operated upon by this method: Twenty-two times for movable retro-displacements; ten times for slightly movable retrodisplacements; twice as an exclusive operation for prolapsus; three times combined with perinæorrhaphy for prolapsus. Most of these cases have been seen from six to twelve months after the operations, and a few from one to six months after. All of the cases that were operated upon for movable retroversion gave satisfactory results except one, which

the author calls congenital retroversion, and this he was only able to partially raise.

In the cases where the uterus was slightly movable the operation was done after the uterus was replaced forcibly by manual efforts and with the aid of the sound protected with cotton. Of these cases, notwithstanding the peritoneal adhesions that could be felt, two remained in good position and one relapsed.

In seven cases the adhesions were very firm and were with difficulty divided by Schultz's method, and Alexander's operation was done immediately afterward. Of these cases, two were entirely cured and all but one improved.

The author does not consider the presence of firm adhesions a contraindication to the operation, yet he admits the possibility of intestinal adhesions, and the history of one of the patients shows that her bowels could not be made to move until seven days after the operation, and then it was found the uterus had fallen back to the "middle position." This of course shows that a dangerous distortion of the intestinal tract existed.

In the cases of procidentia where Alexander's operation alone was employed the operation failed to benefit the patient.

Of the three cases of procidentia operated upon by Alexander's operation with a perinæorrhaphy combined, the results were satisfactory. The prolapsus in none of the cases was complete. The author considers that cases of prolapsus with cystocele are not apt to be benefited by Alexander's operation.

Of the thirty-seven patients operated upon, five had suppurating wounds. Few had pain severe enough to require morphine.

[The author has omitted to state how many herniæ followed the operations.]

(G. H. MALLETT.)

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## PÆDIATRICS.

## AMERICAN.

*Sarcoma of the Kidney in an Infant: Treatment with Erysipelas Toxine.*

J. H. FRUITNIGHT (*Arch. of Pædiatrics*, December, 1895) reports the case of a boy aged thirteen months, well nourished, with a large protuberance in the right lumbar region and hypochondrium, which had been noticed for three weeks previously. An examination was made under chloroform anæsthesia by Drs. Jacobi, Blumenthal, Safford, and Fruitnight. The hilum of the right kidney could be felt turned toward the left, and the neoplasm attached to the right kidney. The urine contained ten per cent. albumin; no sugar. Specific gravity, 1012. Phosphates and a few blood and pus cells were found.

*Treatment.*—Fowler's solution of arsenic in two-drop doses, three times a day, was given. As the child's family history was free from syphilis and otherwise good, the growth was considered sarcomatous. Owing to the weak condition of the child and the probability that the adjacent tissues were infected, it was decided not to operate. Erysipelas antitoxine containing the *Bacillus prodigiosus* was obtained from Dr. Dillon Brown, and injections begun with three-minim doses, given in the gluteal region daily, increasing up to seventeen minims by the ninth injection. When the antitoxine was exhausted an interval of four days occurred before a fresh supply was procured. The dose was then reduced to two minims, and increased slowly to ten minims. Fifteen injections in all were given. The temperature never rose above 102° F. An acceleration of the pulse and slight elevation of temperature followed each injection. The child died the day of the fifteenth injection. Comparative measurements taken during the course of the disease were:

CIRCUMFERENCE.	On Jan. 12.	On Feb. 18.	On Feb. 25.	On Mar. 4.
	Inches.	Inches.	Inches.	Inches.
At ensiform cartilage.....	15	17½	17½	17½
At 2 inches below cartilage.....	17¼	20½	20½	23
At 4 " " ".....	19½	22½	23	24½
At 6½ " " umbilicus.....	18	21½	22	22½
At crests of ilia.....	16¾	18½	19	20½
From ensiform cartilage to symphysis pubis..	9¾	10	10¾	11½

Autopsy revealed a tumor filling the right side of the abdominal cavity and extending into the pelvis, and generally adherent. Weight of tumor, four pounds and a half; length, seven inches and three quarters; width, six inches and a half. Broncho-pneumonia in the upper lobe of right lung. Right kidney involved in growth; left kidney enlarged, weighing four ounces.

Microscopical examination of growth, made by Dr. Henry Power, showed it be a rhabdomyoma, showing adenomatous tissue in parts.

### *Tetanus of the Newborn.*

J. LEWIS SMITH (*ibid.*) finds that premonitory symptoms of tetanus in the newborn are usually absent or too slight to attract attention. The first marked symptom is the inability to nurse, or evident pain in so doing. Rigidity commences in the masseters, and gradually extends to other voluntary muscles; in a few hours it may involve those of the trunk; the degree of rigidity increases slowly. During the period of maximum rigidity the jaws are firmly fixed, the head arched backward, the forearms flexed, and the thumbs flexed across the palms and clenched by the fingers; the thighs are flexed on the abdomen, the great toes adducted, and the others flexed. Opisthotonus occasionally occurs. Spasms vary in intensity; during sleep there is partial relaxation. During a paroxysm the eyelids are firmly compressed, the lips either drawn in or pouting, cheeks and forehead wrinkled, facial expression indicative of pain; there may be quivering of the limbs, but the spasms are tetanic rather than clonic. In fatal cases the paroxysms increase in frequency until collapse. Respiration is suspended or retarded during the paroxysms, giving rise to cyanosis, and occasionally hæmorrhages occur from the nose or umbilicus from rupture of the umbilical vein, but more often about the brain and spinal cord. The pulse varies in different stages and cases from rapid to slow. The appetite is undisturbed, but spasms prevent nursing or swallowing of food; rapid wasting occurs in consequence. The bowels may be either loose or constipated. The spasm of the eyelids prevents observation of the eyeballs; attempts to open the lids provoke a paroxysm. Strabismus is often present. Death may occur from apnœa, cerebral congestion or apoplexy, or more commonly from exhaustion.

*Mortality.*—At Westmannæ sixty-four per cent. of all infants died of tetanus. Of forty cases, Dr. Smith has seen eight recover.

*Duration of Disease.*—In the Stockholm epidemic of 1834, of forty-two cases, few lasted over two days. At the Stuttgart Hospital, of

eighteen cases, fifteen died in two, two in five, and one in seven days. Of Dr. Smith's thirty-one fatal cases, one lived three hours; eleven, one day or less; twelve, two days; four, three days; three, four days.

*Ætiology.*—With perhaps a few exceptions, tetanus is due, both in man and animals, to microbic origin.

In tetanus neonatorum the bacillus enters through the umbilical vein and lymphatics.

*Preventive Measures.*—General sanitary measures, and especially cleanliness of bedding and dressings, should be observed. Dusting the umbilical cord with aristol, iodoform, salicylic acid, or boric acid is advisable. Mixed with glycerin, these agents penetrate deeper into the umbilical fossa than when dry. Care should be observed to keep the skin under the sloughing cord clean and dry. Frequent changing of dressing and renewal of antiseptic agents are required. Grafton has never seen a cure occur when turpentine dressings were used—at first a few drops of pure spirits of turpentine, subsequently one half to two thirds with olive oil.

*Treatment.*—Opium and antispasmodics have been used with variable results. Anæsthesia mitigates the paroxysms only. Chloral and the bromides are of great service. Widerhofer has saved six out of twelve cases by chloral in one- to two-grain doses by mouth, or two to four grains by rectum. Dr. Smith has seen it prolong life in doses of one half to one grain every two hours. Stimulants are indicated in exhaustion.

*Locally*, if the umbilicus is inflamed, emollient poultices should be used. Escherich reports four cases of tetanus neonatorum treated by Tizzoni's antitoxine with one recovery. Firth (*British Medical Journal*, September 18, 1894) reports a fatal case of tetanus neonatorum where antitoxine was used. Four injections were given, two grammes in all, with no improvement; injection commenced on the eighth day of the disease. Child lived to the tenth day. The antitoxine should be used early in the disease. Hewlett's experiments in immunizing animals with immunized horse serum show that minute doses will protect an animal from toxic doses of tetanus toxine, injected twelve hours later. Mixtures of toxine and antitoxine serum in proportions of forty or fifty parts of the former to one of the latter are completely inert.

Antitoxine has considerable curative power; but much larger doses are necessary when the disease has declared itself than when used as an immunizing agent. The antitoxine treatment seems to give the



best hope of cure. Of forty-two recorded cases of tetanus, nearly all traumatic, treated by antitoxine, fifteen died and twenty-seven recovered—a mortality of thirty-six per cent.

#### GREAT BRITAIN.

##### *Some Recent Observations on Infant Feeding.*

WILLIAM O. PRIESTLEY (*Brit. Med. Jour.*, December, 1895), in summing up the conclusions of M. Bodin, at whose clinic he had watched a series of investigations concerning the best way of feeding newborn infants, says :

1. That he regards breast milk as absolutely the best and safest nourishment for an infant, and that when a mother can not nurse her own child the best substitute is a good wet-nurse.

2. When artificial feeding must be resorted to, sterilized cow's or other animal's milk is by far the best substitute ; but even when milk has been sterilized it must be guarded by certain precautions, and the simplest feeding bottle is the best.

3. Sterilized milk is best given undiluted with water, the quantity given to vary with the age of the child and other circumstances.

##### *The Use of Antiseptics in the Treatment of Infantile Diarrhœa.*

W. SOLTAU FENWICK (*Brit. Med. Jour.*, December 1, 1895) calls attention to the various chemical changes which occur in the digestive tract as a result of bacterial activity, and the symptoms that arise from the absorption of organic poisons from the stomach or intestine.

*Ætiological Considerations.*—The researches of Escherich van Puteren have shown that while at birth the contents of the digestive tract are sterile, bacterial infection is brought about by the swallowing of atmospheric air as well as the ingestion of contaminated milk. The danger is increased by the fact that the infant's gastric juice is deficient in free hydrochloric acid, which serves so important a part in later life as a germicide. The entrance of undigested and fermenting material into the intestine induces violent peristalsis, causing colic and diarrhœa until the bowel empties itself of the irritating contents. If the digestive disturbance is overlooked or neglected and the child is constantly plied with food, each fresh supply of milk undergoes the same process of fermentation in the stomach and hastens the advent of gastro-intestinal catarrh. First, this disorder is a direct result of bacterial activity, which produces fermentation of food with subsequent inflammation of the stomach and intestines ;

second, the intestinal derangement is primarily dependent upon gastric indigestion; hence the diarrhœa will not cease until the gastric disorder subsides; lastly, the prognosis in chronic cases depends on the extent of the organic changes which have occurred in the digestive organs, and the influence they exert in the assimilation of food.

*Medical Antiseptics.*—The various antiseptic drugs adapted for medical use are divided into soluble and insoluble in water. The first, or soluble, include carbolic acid, perchloride of mercury, lactic acid, hydrochloric acid, salicylate of sodium, and resorcin. The second, or insoluble, are naphthalin,  $\beta$ -naphthol, betol, benzol-naphthol, salol, the salicylates of bismuth and strontium, and calomel. The soluble variety possess germicidal and toxic properties in direct proportion to the dose in which they are given. As they are absorbed rapidly from the stomach, they can only exert their specific action in the stomach and upper intestine. The insoluble drugs, on the contrary, remain for the most part unaltered in the stomach, and therefore exert but little influence on the fermentative processes there. In the intestine, however, the majority of them are decomposed by chemical influences into secondary substances possessing both antiseptic and poisonous properties far in excess of the original drug. These remedies are reserved for cases of intestinal fermentation, and given in full doses at short intervals. Hydrochloric acid inhibits the growth of more bacteria in the proportion of more than 0.17 per cent. Combined with pepsin, it digests bacteria. In infantile dyspepsia in four-per-cent. solution it is very efficient, but is contraindicated in gastric catarrh. Lactic acid is less than one fifth the antiseptic strength of hydrochloric acid. Carbolic acid is one of the most powerful germicides we possess, but its unpleasant taste and poisonous character render it objectionable. The presence of pyrocatechin in the urine is a danger signal to be heeded by withdrawing or reducing the dose of the drug. Carbolic acid can be given to children in one-minim doses of the pure acid well diluted. Perchloride of mercury is limited by its toxic properties. In severe diarrhœas it can be given in one-sixteenth- to one-twelfth-of-a-grain doses every two hours. Resorcin in solution is a powerful antiseptic; it is rapidly absorbed by the mucous membrane of the alimentary canal. In moderate doses it is devoid of toxic properties; a drachm or more will cause giddiness, headache, and sweating. Of the insoluble drugs, naphthalin enjoys the best reputation. Although insoluble in water, a certain amount is absorbed in the intestine and excreted by the kidneys as naphtho-sulphite of sodium, giving a brownish-black color

to the urine. It causes renal or vesical irritation in some cases. Dose for child, two to five grains in sugar or sweet emulsion.  $\beta$ -naphthol is effective in two-grain doses every four hours mixed with sugar. Salol is split up in the duodenum into phenol and salicylic acid. To infants ten grains can be given in divided doses in twenty-four hours.

Benzol-naphthol is a tasteless powder, and not toxic in moderate doses. It may be given to infants in doses of thirty grains *per diem*. Iodoform, formerly used, has given place to other drugs.

Salicylates of bismuth and strontium undergo chemical changes in the intestines, forming salicylic acid and metallic sulphides. The acid exerts a powerful antiseptic influence on the contents of the bowel, and is slowly eliminated by the kidneys. The sulphide of bismuth blackens the stools. They may both be given to infants in doses of one to three grains every four hours. Calomel in small doses is probably converted into perchloride of mercury in the stomach, and into sulphide of mercury in the intestine. It is by far the most reliable remedy in acute diarrhœa of infants, in fractions of a grain at frequent intervals.

*Results.*—Drugs of nauseous taste or offensive smell are rarely tolerated by a child, even mixed with sugar. Owing to the rapid absorbent powers of an infant's stomach, it is difficult to obtain antiseptic effects from carbolic acid or perchloride of mercury without great risk of poisoning the child. Bulky powders like charcoal are inapplicable for infants. Acute dyspepsia is readily cured by dietetic treatment with the use of castor oil as an emetic. Antiseptics are only needed when the disease has continued several days. When so, calomel, in doses of one sixth to one third of a grain every three or four hours, is of the utmost value. In chronic diarrhœa due to fermentation, antiseptic drugs are of great service. As the disease commences in the stomach, it is useless to give the insoluble drugs at first. Resorcin in doses of three grains every four hours for infants under a month old is attended with no toxic effects. Improvement is noticed by the third or fourth dose, and by the end of the second day the diarrhœa usually ceases altogether.

Of one hundred and twenty cases of diarrhœa having lasted for one week to two months, but nine cases continued for a week after treatment with resorcin was instituted; the majority yielded in three days. Of these nine, two were cholera infantum and one tuberculosis. The remaining six were rapidly cured by adding benzol-naphthol or salicylate of bismuth to the original mixture. When the

disease has lasted a long time, and follicular ulcerations of the large intestine exist, these insoluble antiferments are of great service. Benzol-naphthol is particularly advantageous, and may be given as high as forty grains in twenty-four hours to a child with excellent results. Salicylate of strontium does not seem to have any advantage over the corresponding salt of bismuth.

## FRANCE.

*Salpingo-ovaritis as a Sequence to Vulvo-vaginitis of Childhood.*

M. MARX (*Arch. de toc. et de gyn.*, No. 10, 1895) states that until recently the cause of vulvo-vaginitis was in the great majority of instances attributed to infection by an individual suffering with acute or chronic blennorrhagia. Little has been said of cases of vulvo-vaginitis in children caused by want of hygiene, scrofula, rachitis, etc., or by the eruptive fevers.

The author has carefully investigated the ætiology of a number of these cases both in the children of the poor and of the well-to-do classes, and he has come to the conclusion that the blennorrhagic origin is the exception and not the rule.

This is easily appreciated when we think of the many ways that pyogenous micro-organisms can be brought into contact with the vulva, as by the use of toilet articles, sponges, napkins, etc., that have been used by others; the seat of the water-closet, or an irrigator.

The author has studied numerous cases where the gonorrhœal origin must be excluded, and where serious complications have followed—salpingitis and ovaritis, which forms the subject to be discussed.

Whatever be the cause of vulvo-vaginitis, its symptoms are the same and so are the sequelæ. The chief symptom is the purulent discharge. This varies greatly in the amount. If not attended to it may last for months or years and may recur. The child is pale and emaciated, but may suffer in no other way. The most frequent complication is cutaneous erythema caused by the contact of the pus. The vulva and adjacent tissue is irritated, inflamed, and heated, and may ulcerate.

Urethritis followed by cystitis often occurs, and may ascend and reach the ureters and kidneys.

In children having purulent discharges from the vulva precisely the same symptoms have been noted that are observed in women suffering from acute salpingo-ovaritis. Suddenly when in apparent

health the child has been attacked with high fever accompanied by nausea and vomiting; complained of pain in the abdomen radiating down the thighs. At the same time she had a frequent desire to urinate. The passage of the urine was accompanied by a burning sensation. By careful examination the pain was found to be in the ovarian region. After moving the bowels thoroughly a rectal examination was made by the little finger and œdematous infiltration found on both sides. As there were no signs of perityphlitis, and taking into consideration the pre-existing vaginal discharge, the author concluded that it was a case of suppurative salpingitis.

After extensive observations the author concludes that, after nearly all purulent vaginal discharges in children, inflammations occur in adjacent regions sooner or later. After the discharge has continued for some time and then disappears, the patient seems to have recovered entirely, but when menstruation begins and the girl passes into womanhood, then the troubles commence. These are generally considered physiological, but they are the pathological fruit from the purulent seed sown in childhood. The erythematous eruptions observed in young married women are but exacerbations of the old lesions which appeared as sequelæ of vulvo-vaginitis in their childhood.

The author thinks that the greater part of the inflammatory diseases of the uterine appendages are not due to infection from husbands suffering with chronic blennorrhagia, as has been claimed, but comes from the causes before mentioned. He has observed in the case of virgins who had suffered from vulvo-vaginitis, salpingitis and ovaritis. The notes of these cases are published.

The uterine appendages of fifty little girls who had died in the children's hospital were examined. In five of these the tubes were found distended with pus. They were enlarged and greatly congested and the uterine orifices were obliterated. The diseased tubes were taken from girls seven, eight, and nine years of age.

The author urges the importance of prompt treatment in cases of vulvo-vaginitis. He advises morning and evening vaginal injections with a soft catheter and using a solution of potassium permanganate (1 to 1,000). After the injections the vulva should be washed with warm borated water and absorbent cotton placed between the labia. In rebellious cases a solution of 1 to 500 of nitrate of silver may be used. For salpingitis the author uses the ice bag to the abdomen with slightly sedative enemata and hot-water vaginal injections.



## OBSTETRICS.

## AMERICAN.

*Antiseptic and Aseptic Midwifery in Private Practice.*

FRANCIS H. STUART (*An. of Gyn. and Pæd.*, December, 1895) says that before the days of antiseptics the mortality in lying-in hospitals was so great that the International Medical Congress held at Brussels about twenty years ago recommended that all such institutions should be closed. Now a well-conducted lying-in hospital is a safer place to be confined in than the average home. While the mortality has been greatly reduced in these institutions by antisepsis, the reports from private cases show about the same ratio of deaths as twenty years ago. Two questions naturally arise: First, is it more difficult to secure aseptic conditions in private homes? Second, does the average practitioner make sufficient endeavors to secure such aseptic conditions? What should the obstetrician do to secure the best surroundings for his private patients? In brief, as careful preparation of the room should be made as for a severe surgical operation, while all the accessories of the accouchement—the sheets, blankets, pillow-cases, pads, napkins, etc.—must be made and kept aseptic and clean. Where skilled nurses are employed, these details are comparatively easy to manage; but even in the poorest homes a comparatively aseptic condition of affairs may be secured by the careful directions of the physician. It is perhaps unnecessary to say that both nurse and physician should be strictly aseptic as to dress and person. The patient should take frequent and thorough baths, and at the onset of labor should be instructed to especially scrub the genitals, abdomen, and thighs. Rectal enema, sufficient to thoroughly empty the lower bowel, should be given. Then a vaginal douche of Tavel's solution to which is added one per cent. of pheno-salyl, should be given. After this the vulva and adjacent parts should be sponged with a 1-to-2,000 solution of bichloride of mercury, and then with alcohol. Perfectly clean clothing should be placed on the patient and bed. Vulva pads should be made from absorbent cotton and boiled cheese cloth. An abundant supply of *boiled* water in bottles, as well as boiling water, should be insisted upon, as well as a douche bag and pan, green soap, three papier-maché basins, bichloride-of-mercury tablets, pure carbolic acid or pheno-salyl, carbolized vaseline, steril-

ized nailbrush, alcohol, and powders for Tavel's solution; also clean rubber sheets for the bed. All instruments should be sterilized in case they are needed. As few vaginal examinations as possible should be made. After delivery no douches are needed, unless there has been a dead fœtus or other contaminating condition. During the puerperium, in normal cases, absolute external cleanliness is all that is necessary. Vulva pads should be frequently changed. Rise of temperature when the uterus does not contract firmly may be controlled by twenty minims of fluid extract of ergot, and five minims of tincture of nux vomica three times a day. If the lochia becomes offensive, a douche of simple boiled water, temperature 105° F., is sufficient.

*Suggestions from Practical Observation in Obstetrics.*

F. STAPLES (*An. of Gyn. and Pæd.*, December, 1895) from observation of 1,092 cases during the past thirty-three years. Of 1,000 recorded cases, thirty-three per cent. were primiparæ. The largest number of births were in the months of August and October, the smallest in June. The youngest mother was fourteen years three months. Child weighed five and a half pounds; full term. Vertex presentations, ninety per cent.; face, four per cent.; podalic, five per cent.

In case of dystocia he cautions against too hasty interference before full dilatation of the cervix, and the neglect of anodynes and rest, and adopts Goodell's rule that in uniformly contracted pelvis forceps is better than version.

In narrowing of the conjugata vera, version should be resorted to after a trial with forceps, version being preferable to lashing of the forceps handles.

Injuries during labor will occur with the utmost care. Those who claim never to have seen a laceration may be suspected of being very careless observers or unfortunate in their early moral education. Lacerations of both cervix and perinæum should be repaired at once under an anæsthetic and with aseptic precautions.

He urges the importance of a careful study of each case before delivery as regards pelvic diameter and the general condition of the woman, especially nephritic disturbances, and urges strongly thorough antiseptic precautions both during delivery and the puerperal state.

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*Manual Interference to correct Certain Undesirable Presentations.*

J. F. BALDWIN (*Columbus Med. Jour.*, December, 1895) called attention to a scholarly paper on the use of the hand to correct unfavorable vertex and face presentations during labor, read by the late Dr. John S. Parry before the Philadelphia Obstetrical Society in 1873, which has been unheeded by the profession.

The standard works of the day make little or no reference to this method of treating such presentations. Dr. Parry urged the use of the hand, *first*, to change occipito-posterior into occipito-anterior positions; *second*, to convert mento-posterior into occipito-anterior positions. The accomplishment of this with the head in the pelvis requires, first, *complete* chloroform anæsthesia; next, the introduction of the whole hand into the vagina, observing careful antiseptic precautions. The head can then be pushed up above the brim of the pelvis, the operator's other hand aiding by pushing up the shoulder through the abdominal wall. When this is accomplished the internal hand can easily change the position of the head by flexing or extending it, as the case may require—the former in mento-posterior, the latter in occipito-posterior positions—or the child can be rotated on its vertical axis so as to produce an anterior position of either occiput or chin. The external hand should support the child by the shoulder during the manipulation. When the desired position has been obtained it must be maintained by the hand until uterine contractions drive down and fix the presenting part, chloroform being suspended. The ease with which this procedure is accomplished is astonishing if the chloroform anæsthesia is complete, for then the uterine and abdominal walls are flaccid, allowing the child to be pushed back into the uterus.

Dr. Baldwin reports eight successful cases and one partially so. Owing to obesity—the woman weighing three hundred pounds—it was found impossible to grasp the child's shoulder through the abdominal wall; as a result he could not convert an occipito-posterior into a mento-anterior position by the internal hand alone, but had no difficulty in raising the head above the pelvic brim and rotating the child on its longitudinal axis so as to produce an occipito-anterior position. Dr. Baldwin emphasized the absolute *necessity* of *complete* chloroform narcosis before attempting to elevate the presenting part.

## GREAT BRITAIN.

*The Education of the Student in Practical Midwifery.*

ROBERT REID RENTOUL (*British Medical Journal*, November 23, 1895) regards the education of the student in practical midwifery as sadly neglected when compared with the attention given to medicine and surgery.

He quotes Sir W. Priestley as saying "that while great advance has been made in public institutions, progress of a like kind has not taken place in private practice. The researches of Dr. Boxall make it clear that there is a large preventable mortality among puerperal patients attended at their own homes, and if this continues it may become a standing reproach to us that women delivered in lying-in hospitals are actually safer than those confined in their own homes, which at one time was quite the reverse."

It is more than a pity that the traditional hatred which some Fellows of the colleges bear to the practice of midwifery should still linger in our General Medical Council. Thousands of mothers and infants have been sacrificed to this unmeaning hatred. In 1733 the Fellows of the Irish College of Physicians ordered that no one practicing midwifery should be granted their diploma. Consequently they made themselves a laughing stock by refusing it to Sir Fielding Ould. In 1765 the Fellows of the Edinburgh College of Physicians ruled that no one could be admitted a Fellow whose "common business it is to practice midwifery," and, further, that if any Fellow practiced any of these "low acts" he was to be degraded. In 1811 the Fellows of the London College of Physicians ordered that no practitioner should be made a Fellow if he practiced midwifery. In 1843 the Fellows of the College of Surgeons of England also ordered that no Fellow would be admitted to the Council of the college if he practiced midwifery. On May 2, 1827, the London College of Physicians, in an official document to the Secretary of State to the Home Department, when speaking of midwifery, characterized it as "an art foreign to the habits of gentlemen of enlarged academic education!" No wonder, then, the death-rate in childbirth was enormous. In 1858 the College of Surgeons of England began to grant its single diploma in midwifery and to those who had neither a medical nor surgical qualification.

Fortunately, in 1886 a fresh move was made with the view of placing midwifery upon the same high level as medicine and surgery; from that year it was enacted by the Medical Act that on and after

1887 no one could have his name placed upon the *Medical Register* unless he had passed a qualifying examination in the three subjects of midwifery, medicine, and surgery.

The General Medical Council has so far failed to carry out the true meaning of the Medical Act (1886), because it fails, in reality, to place midwifery on the same level as medicine and surgery. The certificates required by the various examining bodies are more exacting in the study of medicine or surgery by the student during his five years than they are in midwifery.

A study of the mortality statistics of childbirth will not justify our General Medical Council in ignoring the vast importance of a proper training of the student in practical midwifery. In 1893, in England and Wales, of a total of deaths of 569,958 persons, 5,950 were women who died from puerperal fever and the other accidents of childbirth—that is, at least one death in every ninety-five of the total deaths was that of a woman in childbirth. From 1871 to 1893 no fewer than 48,374 mothers died from puerperal fever, and 50,211 from the accidents of childbed in England and Wales. This is a shameful state of affairs. How much higher would these statistics be if they were correct records? The Registrar General has expressed constantly his regrets as to the untrustworthiness of the puerperal mortality returns, while McClintock has said that “one fourth is not too much to allow for deaths omitted in the registration returns of deaths in childbed.”

Duncan has shown that one in every fifteen women in her first confinement dies. Thus the maternal mortality is actually much higher than that following major surgical operations. Yet the General Medical Council seems to refuse to recognize the practical bearing of these fearful statistics. In the same way the death-rate from puerperal fever is very high, and partly because the student has to work up his knowledge in “midwifery, diseases of women and of infants” in *six months*.

When Dr. Glover brought the subject before the General Medical Council in 1891, Dr. Athill said: “I experience a feeling akin to shame at having to second so obvious and so necessary an improvement in the training of the student.” Dr. Kidd said that “the requirements were woefully inadequate.” The requirement is, that the student must have conducted personally only three cases of labor before being admitted to his final medical examination. Sir W. Foster said that “the regulations of the Council in respect to midwifery were the subject of scoff and satire,” while Mr. Wheelhouse said he “regarded it as little short of a reproach to the Council that it should be



said to regard three cases as sufficient instruction for a candidate in obstetrics," and "that obstetrics were better taught forty years ago than at present." Dr. Murdoch Cameron says: "A chapter of horrors might be written upon mismanagement of labor, and in which only the mystic letters appended to the operators' names protected them from prosecution. If such men bungled their surgical cases in the same way they would soon find themselves in court for malpractice."

The examinations of students in midwifery should have some educational value. But in England the qualifying examinations comprise only a number of paper questions and an oral examination. In Germany the student, for his final examination, must conduct, on his own responsibility, a confinement before the examiner, and send in a written report the day after. For the next seven days he must visit the patient twice daily, and, if the woman dies, he must make a *post-mortem* examination and send in a report.

I hope that when this question comes up again it will be made more definite; that it will recommend that the student must himself 'personally conduct' at least thirty labors; that he must do so under the "direct supervision" of a registered medical practitioner, and not by himself or with a midwife, and that the name and address of the patient, the date of the confinement, and the name of the supervising practitioner be entered upon his certificate of attendance.

#### FRANCE.

*Contracted Pelvis between Eight and a Half and Nine Centimetres; Vertex Presentation; Parturition at Term of a Living Child by the Employment of a Lever.*

WASSILLIEFF (*Arch. de toc. et de gyn.*, No. 9, 1895) relates the case of a woman, aged thirty-eight years, pregnant for the third time. Her previous parturitions were effected spontaneously before term at eight and seven and a half months respectively, both children being born alive, but living for a short time only. Premature delivery had been advised by Budin and Wassillieff in her present pregnancy some months previous, but refused. Dr. Wassillieff was called to attend her in labor at term. He describes the woman as short of stature; of rhachitic appearance, with dorso-lumbar scoliosis; left convexity seven centimetres' deviation. The fundus of the uterus was seven fingers' breadth above the umbilicus. Presentation, left occipito-iliac; the cervix was high above the pelvic brim; conjugata vera measured

eight centimetres and a half; uterine contractions were strong; cervix dilated to the size of a silver dollar; membranes unruptured; head unengaged at inlet; foetal heart sounds distinct. Five hours and a half later, the head being still unengaged, the cervix fully dilated, and the membranes ruptured, Dr. Wassillieff decided to interfere, as the woman began to show signs of exhaustion and the foetal heart sounds were growing feeble. In the absence of suitable assistance and materials, he decided to make use of the lever, as advised by Tarnier, instead of forceps, version, or symphysiotomy. Selecting the right or anterior blade of the forceps at hand and introducing it very slowly and gently between the pubis and foetal head, he then used it gently as a lever, making the pubis the fulcrum, lifting the handle, and exercising a slight degree of torsion and traction on account of the pelvic curve of the blade, very slight force being expended. In a minute the head was engaged, and delivery accomplished in less than half an hour without injury. The infant, though asphyxiated, was promptly resuscitated. The placenta came duly, and the subsequent history of the case was uneventful. Dr. Wassillieff considers modern neglect of the lever in cases of moderate pelvic contraction as unfortunate.

#### *Obliteration of the Os Uteri in Labor.*

EUSTACHE (*Arch. de toc. et de gyn.*, No. 10, 1895), after referring to various causes of cervical dystocia—viz., rigidity (either spasmodic or pathological), œdematous elongation of the cervix, prolapse of the anterior cervical lip, and thrombus of the cervix—reports the case of a primipara, aged eighteen years, who suffered with labor pains for four days before she entered the hospital. Examination by the resident physician revealed a vertex presentation felt through a thinned uterine wall; the bulging mass filled the pelvic cavity and rested on its floor. No cervical dilatation could be felt. Uterine contractions were regular and strong. On the following day the bulging mass could be seen at the vulva, the pains continuing. This state of things persisted until the next day, forty-eight hours after admission to hospital, when occlusion of the cervical canal suggested itself to the resident physician. A small spot, half a centimetre in diameter, could be felt on the surface of the uterine wall as thinner than elsewhere. Prof. Eustache's attention was called to the case; he recognized the above conditions, and by means of his finger nail broke through this thinned spot. Liquor amnii escaped and the cervix dilated rapidly, the labor being terminated in three hours. A child of about eight

and a half pounds' weight being the result, a slight cervical laceration was the only complication. Subsequent history of the case uneventful. Naegel reports similar cases of agglutination of the external os. Depaul distinguishes between obliteration of the internal and external os uteri, the latter being the most frequent.

The writer had seen but one case of obliteration of the internal os, and that was from annular cancer of the cervix. Recognition is easier in obliteration of the internal os than in that of the external.

The ætiology is obscure ; among the many causes mentioned are stenosis of the cervix prior to pregnancy from metritis, granulation and cicatrization of simple inflammatory, diphtheritic, gangrenous, syphilitic or traumatic origin ; of the latter, caustics, operations, and attempts at criminal abortion are most frequent. The formation during pregnancy of a plastic plug or of a caducous membrane is also a cause. The diagnosis is made with difficulty, as this condition may be mistaken for a displaced uterus or thick amnion with fully dilated cervix. The presence of the fundus uteri in its normal position and the continuity of the bulging (uterine) surface with the vaginal wall will correct these errors. Careful palpation of the presenting surface will usually discover a small spot that is thinner than elsewhere, or a slight elevation or semicircular induration.

The management of these cases after the diagnosis is established is simple if the point of occlusion can be found—viz., to tear the cicatricial tissue either by the finger nail or a probe, or to cut it with a bistoury. If the canal can not be made out, a point for incision must be selected with great care as to the probable site.

(T. W. CLEVELAND.)

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THE OPERATIVE TECHNIQUE OF VAGINAL  
HYSTERECTOMY.\*

BY CHARLES JACOBS, M. D., BRUSSELS, BELGIUM.

At the last meeting of the American Gynæcological Society in Baltimore, I presented a large class of cases whose indications are distinctly for vaginal hysterectomy.† I desire in this paper to describe in detail the manual technique of this operation, and we will consider all those modifications also which are properly applied to that form of the operation which may be called "typical"—modifications which have extended very greatly the field of its indications.

THE TYPICAL OPERATION.

A. *Uterus of Normal Size, Non-adherent or Slightly Adherent.*

*Instruments*:—A perineal retractor, two lateral retractors, a pair of strong scissors, two traction forceps, six long forcipressure forceps, a thermocautery.

The perineal retractor being in position upon the fourchette, the operator seizes both lips of the cervix in a traction forceps and drags down the uterus as far as possible; then, holding the forceps vertically in his left hand, he draws the neck toward the pubis, in order to place the posterior *cul-de-sac* well upon the stretch; the two lateral retractor

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\* Expressly written for this JOURNAL and translated literally from the original French.

† Indications for Total Castration by the Vagina. *American Gynæcological and Obstetrical Journal*, June, 1895.

tors assist in exposing this region. With the thermocautery in his right hand, he makes a semicircular incision upon the posterior surface of the neck, after which the assistant on his left takes the traction forceps in order to free the left hand of the operator. The latter then catches, with a long dissection forceps, the lower edge of the incision made by the thermocautery and continues the dissection into the deep tissues, still by means of the cautery, which he holds as close to the cervix as possible. The opening up of the posterior peritoneal *cul-de-sac* is rapidly done and is greatly assisted by the use of the fingers.

The traction forceps are now drawn vertically toward the fourchette and a semicircular incision, the ends of which should unite with those of the first incision, is made upon the anterior surface of the neck with the thermocautery. The dissection of the cellular tissue is accomplished by means of the finger, which should separate the bladder and the ureters by a "to-and-fro" movement; the lower vaginal portion of the cervix also being completely dissected from its attachment to the cellular tissue by the same means. The peritonæum which appears at the bottom of the wound is caught up by the operator and incised with scissors, the opening being further enlarged by the fingers.

The index finger is now introduced through the open pouch of Douglas and examines the body of the uterus and the condition of the appendages. The separation of these organs from their adhesions to neighboring tissues is aided by the steady traction exerted by the other hand of the operator, which holds the forceps upon the uterine neck. The thumb and index finger of the left hand then grasp the entire thickness of the tissues which unite the neck laterally with the neighboring tissues and which always includes one or two vaginal arterioles. These tissues are firmly compressed by forcipressure forceps with a short bite, placed along each side of the cervix, and are then divided. After this proceeding, the uterus descends considerably.

In order to extract this organ, it only remains to draw strongly upon the traction forceps, a finger being introduced at the same time into the anterior *cul-de-sac* to give the body of the uterus a swinging motion in an outward direction; the appendages follow. A long pair of forceps are placed, on the outer side of the appendages, upon the broad ligament; if the uterus be large and the vascular system greatly developed, I do not hesitate to use two forceps, the lower one assuring hæmostasis of the uterine and the upper of the ovarian artery. The incision is made on the inner side of these forceps and the uterus



is removed entire with the appendages. The patient has not lost five grammes of blood. The "typical" operation, performed by this method, takes from two to five minutes.

*B. Large, Adherent Uterus, without Attachments.*

The beginning of the operation is exactly similar to the preceding—that is to say, we detach the cervix from its insertion in the vagina by means of the thermocautery, we open up the anterior and posterior *culs-de-sacs* and place laterally on the neck two long forceps, which enable us to dissect it out without hæmorrhage.

We now divide the anterior lip of the cervix in the median line, and traction forceps are placed to the right and left of this commissure. The left forceps is handed to an assistant, who draws forcibly upon it in a downward direction, while the operator holds the right forceps in his left hand and the scissors in his right. The cervix is divided at the median line as high up as possible and from before backward. Two traction forceps are fastened upon the edges of the wound, one on the right and the other on the left, one branch of each being in the uterine cavity and the other fixed upon the anterior surface of the cervix or uterus. Traction is maintained by continuous action upon these forceps. Those adhesions holding the uterus in the pelvis, which are most accessible, are now divided and the median incision is continued. As a deeper portion of the anterior surface of the uterus appears, it is divided and two extra traction forceps are applied as high as possible upon the lips of the incision. When the fundus is reached the last adhesions are broken up by the finger and a swinging motion outward is given to the uterine body, in which manœuvre a finger placed behind it is of marked assistance.

When the uterus is delivered, the appendages come at once within reach and are seized and drawn down as far as possible. One or two forcipressure forceps are then applied to the broad ligament outside the annexa and control the uterine and ovarian arteries. Here also the uterus is removed entire with its appendages.

It often happens that, during the rocking motion given to the uterine body, the cervix, if large and somewhat elongated, tends to fall back into the cavity of the vagina. By drawing upon the first two traction forceps, which should always be left in place, the whole organ can easily be drawn down.

It is an essential point in placing the forcipressure forceps always to protect the bite of these instruments upon the index finger passed in front and the thumb passed behind the ligament, that we may be

certain not to injure any organ, whether intestine or omentum. In the same way section with the scissors should always be carried out with the greatest care.

The cases of uterine prolapse which occur in this category often present great difficulties on account of the thickness of the vaginal mucosa, the great vascularity, the elongation of the cervix and the formless condition of the portio vaginalis. Here also one must be very careful not to wound either the rectum or the bladder. I have always found in cases of prolapse that the operation is longer and more difficult than in other cases.

### *C. Pelvic Suppuration ; Pelvi-peritonitis ; Old Adhesions.*

If the uterus is voluminous with thick friable walls and held down in the pelvis by numerous adhesions, and if the pelvic cavity is filled by large, attached tumors adherent to all the neighboring organs, the following is the operative technique :

Traction forceps having been placed upon the cervix, its condition of fixity in the pelvis is determined by a few vigorous pulls. The inferior retractor is now inserted, and the neck is raised by holding the traction forceps against the pubis with the left hand. We then make a semicircular incision upon the posterior surface of the neck with the thermocautery.

The assistant holds the traction forceps without changing their position, and the dissection of the posterior *cul-de-sac* is continued by the thermocautery, which is kept as near as possible to the uterine tissue. While in cases of movable uterus the peritoneal *cul-de-sac* is easily opened by the thermocautery, in these cases we can rarely succeed in this way. Raising the posterior retractor, we continue the dissection by means of the finger until the peritonæum is reached. The finger, by a lateral to-and-fro movement, breaks up all the adhesions, opens the peritoneal cavity and frees the posterior surface of the uterus. It often happens at this time that a gush of serous, sero-sanguineous, or purulent fluid occurs, the finger having opened adhesion sacs behind the uterus ; though inflammatory sacs of the annexa are rarely opened in this way. Considerable practice in these operations imparts to the finger such tactile sensibility that these inflammatory pockets of the annexa can easily be distinguished from those which are peri-uterine or from intestinal, omental or other adhesions. We thus free the whole posterior surface of the uterus and are enabled to explore the whole of the lower pelvis. The result of this exploration will show us what our course should be.

If the condition of the patient be very serious and her weakness will not permit a long operation, I am satisfied to look for the encysted purulent pockets, to open them with finger or forceps and evacuate their contents. Moreover, this operation is without danger on account of the numerous adhesions which close the lower pelvis above the uterus. The radical operation may be taken up later when the condition of the patient permits.

If the exploration indicates immediate operation, we continue as follows: The neck is drawn toward the fourchette and the vaginal mucous membrane of the anterior *cul-de-sac* is incised by the thermocautery. The incision is opened out deeply, the bladder is freed by the finger and the peritonæum is opened either by this means or by the scissors. This anterior dissection is always easier than that of the posterior surface where the adhesions are usually found. Two shorter forceps are placed upon the lower part of the ligament, the cervix is completely separated by the scissors and is then incised along the anterior median line. This incision is continued upon the anterior surface of the uterus as far as the adhesions will permit. Two traction forceps are placed on each lip of the incision, and the operator draws them strongly toward him. The incision is prolonged upward upon the part which presents and is thus continued to the fundus of the organ, which is often adherent to the intestine or omentum. The dissection of the fundus of the uterus may be made in full view. I have often seen, while detaching intestinal adhesions with the thermocautery, the uterus at the vulva—the cervix at the fourchette and the fundus at the superior commissure. The last adhesions having been separated, the uterus is held by traction forceps placed at the middle of the upper posterior surface; this allows the removal of the traction forceps previously attached.

If examination of the annexa shows them to be very large, I am accustomed to place two long forceps upon the sides of the uterus and to remove the latter, in order to give more room for the ablation of the annexa. If, however, these are neither very adherent nor large, they may be removed with the uterus *en masse*, as in the preceding cases.

All adhesions about the tubes and ovaries should be broken up carefully by the index finger and these organs drawn gradually down to the vulva. If the tubal and ovarian pockets are too large they may be punctured and their extraction thus rendered easier. When we have succeeded in bringing the tubes and ovaries outside, it will be sufficient to place one or two forcipressure forceps with a short bite upon the broad ligament and to cut them off.

A douche with sterilized water is often necessary after ablation, especially if the escape of pus has been abundant. If the tumors or annexial pockets are very large we should begin by puncturing them. I am accustomed to evacuate the contents of these pockets by the bistoury or scissors at the most accessible point. Generally it is easy, after a partial or complete evacuation, or even during it, to draw the pockets down to the vulva either by means of the traction forceps attached to their walls or by using simply the fingers to separate adhesions and drag them outside. It is very rarely that I am obliged to leave portions of these pockets in the pelvis, and I have often been able to demonstrate the facility which the vaginal route offers for attacking all adhesions, whether intestinal or omental. I have many times been able to draw the walls of these pockets and the intestines which adhere to them down to the vulva and to dissect off these adhesions by the thermocautery under the eyes of the spectators. When the walls of a tubal pocket are thick and cheesy, as is usually the case in enormous tumors, we should never hesitate to drag them down outside by means of traction forceps, one blade of the forceps being introduced into the pocket.

When the adhesions present a very large surface, it is possible, though with difficulty, to separate them by partial morcellation of the walls. When the firmness of the intestinal adhesions causes danger of perforation to the latter by too strong traction, it is better to leave the upper part of the pockets in the pelvis. They will contract and disappear rapidly, owing to the drainage which will be established after the operation.

#### UTERINE CANCER.

##### *Cancer of the Cervix.*

After having freed the cervix from all friable tissue by the sharp curette I increase the traction forceps over its entire circumference; that is to say, in order to draw down the uterus I use four, six, eight, or ten traction forceps—a method which prevents any of the forceps from slipping and tearing the tissues.

With the thermocautery I then incise widely the vaginal mucosa all around the neck, for a good centimetre in length of the diseased tissues, as far as the cellular tissue. The freeing of the bladder and of the rectum is accomplished by the finger. If, unfortunately, the bladder be torn at the time of operation, the wound should be closed immediately with interrupted sutures. I open the anterior and pos-

terior *culs-de-sac* with scissors, the finger being used to protect the broad ligament. After this, the openings in the peritonæum are enlarged by the fingers and the uterus is drawn down to the vulva by traction forceps. Two small forceps are then placed on each side of the lower vaginal portion of the cervix. Great care must be taken before closing the forceps that the integrity of the tissues is assured; the cervix is now entirely freed by the scissors. I am accustomed next to give a swinging motion to the uterine body, anteriorly or posteriorly, according to the greater facility given by its position and size. Two forceps placed outside the annexa, which follow the extraction of the uterus, assist very greatly in rapid total extirpation and, in a measure, obviate the fear of infecting the pelvic peritonæum.

In *commencing cancer of the body*, the method is the same. If it has lasted several months, the uterus has increased in size and become very friable, and extirpation may be *very difficult*. After opening the peritoneal *culs-de-sac* and completely freeing the cervix up to the level of the internal os, I perform median section, either anteriorly or posteriorly, according to the case; the danger to be avoided is the *slipping* of the traction forceps. This may easily be obviated by employing very small forceps and many of them, since with the cervix the multiplication of points of traction assists the operator very greatly and is an assurance that he will not see his instruments suddenly slip out of hand and the uterus rise in the pelvis.

By means of this method pursued carefully as far as the fundus (which should always be protected by the finger), we reach a point when the uterus may be drawn down to the vagina and the operation completed by forcipressure of the broad ligament.

#### UTERINE FIBROMA.

The operative methods differ according to the case. The separation of the cervix and the opening of the peritoneal *cul-de-sac* is carried out according to the rules which I have already given. If either *cul-de-sac*, on account of its retracted position, can not easily be reached, we should not waste too much time with it but open it during the course of the operation. The cervix is drawn down and divided at the anterior median line. Two traction forceps are immediately placed at the upper ends of the incision, and by their means a considerable portion of the uterus is dragged down into the pelvic strait and the traction continued.

During this traction either by the operator or his assistants, all



the retractors are inserted and the operator proceeds with the index finger to free the bladder as high as possible. The anterior retractor is replaced, which draws the bladder aside and also frees a greater or less extent of surface on the anterior uterine wall.

The median incision is prolonged either by continuing it in its original course when the fibroma is not too large, or by bifurcating it in a Y shape or according to this figure  $\Psi$ . Two traction forceps are now placed lengthwise on the tissues thus separated and are drawn down as much as possible. If the freedom of motion thus obtained is not marked, all that portion of the anterior surface of the uterus comprised within the branches of the V should be immediately cut with scissors or with a bistoury. If two traction forceps be placed on the upper portion, a considerable freedom of motion forward will be obtained, and always in direct relation to the size of the V or of the  $\Psi$ . If the peritoneal *cul-de-sac* now comes into view, I hasten to open it widely. The anterior retractor will draw aside completely the bladder and the ureters and thus obviate any further danger of wounding them.

At this point of the operation fibroid nodules of different sizes are often seen cropping out at various places from the uterine muscle. I immediately enlarge the opening at the site of these tumors, seize them with the traction forceps and extirpate them either by torsion or by morcellation with the scissors or bistoury. When the principal tumor projects into the uterine cavity it also is excised either *en bloc* or by morcellation if its size be too great. I was able to demonstrate this last June at the Rush Medical College in Chicago, extirpating by this method a large interstitial fibroma without forcipressure and without hæmorrhage. A finger carried into the uterine cavity and into the spaces left by the fibromata enables us to ascertain if any portions of them remain; in which case we should find and extirpate them, following the steps already described. Little by little, with the enucleation of the interstitial fibromata, the traction exerted upon the two forceps which are attached to the extremities of the median incision will suffice to work the uterus outside. Often it is merely necessary at this point to extend somewhat this first incision, when we will see the whole uterine mass suddenly slip down to the vulva. The posterior peritoneal *cul-de-sac* may now be easily opened.

With the uterus at the vulva, total extirpation is completed by placing two long forceps with a short bite upon the broad ligament on each side.

If the uterus be surrounded by subperitoneal fibroid nodules, it

frequently happens that their extirpation must precede that of the uterus, because of the latter's exit through the small vagino-perineal opening; if too large, morcellation may be practiced, since of course there is no longer any fear of hæmorrhage.

The essential point in this morcellation of the fibromata is to begin this or to attack the tumors without waiting for the methodic extirpation of the uterus. Moreover, this operation requires a certain amount of experience, although this is quickly acquired. While the uterus, which is studded with fibrous nodules, is being worked down, the sense of touch will enable the surgeon to know which of these it is which offers resistance to extraction—that is the one he must attack. If the nodules are situated in the posterior wall, he will look for them after cutting through the uterine mucosa. When the principal fibroma is situated in the lower part of the posterior wall and has pushed the cervix very high up, why waste time in attempting to open the anterior *cul-de-sac* which is absolutely inaccessible? The posterior vaginal *cul-de-sac* should be opened, where the fibroma may be directly attacked with ease if the tumor be situated low down; if it be high it may be necessary, in order to reach it, to perform a median section or one in the shape of a V upon the posterior wall. When access to the anterior *cul-de-sac* is possible, the *typical* operation should be undertaken. When the fibroma has developed in the broad ligament we should perform morcellation before attempting hysterectomy.

Evidently I can not give here, in detail, the course to be pursued in each case. Two fibromata which are exactly the same are rarely met with, and the operation must thus be varied in detail according to the case. Latitude must be given to the operator, who alone can judge whether this or that method is applicable or favorable to the speedy termination of the operation.

When absolutely necessary, fibrous tumors may, with the exercise of patience, be operated upon which extend to the umbilicus and even beyond, but I fear that the length of the operation and the many manipulations necessary are scarcely favorable to the patient. I have seen French surgeons attempt operations of this sort lasting from two to three hours! I have long given up this practice. I do not operate upon fibromata through the vagina if they extend beyond the umbilicus. When they reach that point and beyond it I perform total *abdominal* extirpation.

Such, briefly, is the operative technique of vaginal hysterectomy as I perform it to-day and as I have had the honor of demonstrating it

during my visit to America. I hope at a future time to return to this very practical subject, in this JOURNAL, and to describe the operative sequelæ and the complications consequent upon total vaginal castration.

## THE INDICATIONS AND MODES OF DRAINAGE AFTER ABDOMINAL AND VAGINAL SECTION.\*

BY NICHOLAS SENN, M. D., CHICAGO.

So many names of distinguished gynæcologists appear on the programme to participate in this discussion that I have deemed it wise to curtail my remarks as much as possible, and, instead of going over the enormous literature on the subject, I will give you the simple rules in reference to drainage which I follow in performing abdominal operations.

Drainage of the abdominal cavity is an expression of the present imperfect state of surgery. It is often an unavoidable evil. It should be limited to appropriate cases, and it is therefore well that the indications for it should be laid down clearly, so that we may have eventually some definite rules that will guide the surgeon in his abdominal work. There are now no fixed rules. Some surgeons avoid drainage wherever possible; others drain as a rule. If I were permitted to pass my judgment on this question as a whole, I would say that the surgeon who has the ambition to operate quickly, to make an impression on the bystanders, should drain frequently; while, on the other hand, the surgeon who proceeds with his work carefully, step by step, with plans well laid out, with his practical knowledge resting on a firm pathological basis, will only drain in exceptional cases. After opening the abdomen the surgeon frequently has to deal with affections that absolutely call for drainage. There is no other course to pursue. He meets with pathological conditions that can not be successfully removed; he meets with cavities the walls of which it is impossible to extirpate, and consequently he proceeds to establish an abdominal fistula, a great consolation to the operator, because it enables him to do something, so that probably during the course of time Nature will come to his rescue, taking advantage of the temporary drainage, and eventually closing the cavity where drainage was

\* From the *Transactions* of the Chicago Gynæcological Society, January 17, 1896.

established. One of these conditions is met with in a distended or diseased gall bladder. It is my firm conviction that the best success obtained in cases of disease of the gall bladder requiring opening of the organ, in the absence of a permanent occlusion of the common duct, is the establishment of an external fistula. This operation shows the greatest success, is attended by the least danger—in fact, it is almost devoid of danger, if the surgeon is careful to prevent infection of the peritoneal cavity during the operation.

The next condition—one that is not so frequently met with (but there are now some forty or sixty cases on record)—is cyst of the pancreas. A few bold surgeons have made the attempt, and in a few isolated cases have succeeded in extirpating pancreatic cysts with a mortality of more than fifty per cent. Statistics show that the formation of a fistula usually results in a permanent cure in the course of a few weeks, and that a permanent fistula is the exception.

Very often the surgeon makes a mistake in diagnosis, opens the abdomen for a supposed ovarian cyst or an ovarian tumor of some kind, and is astonished, when he has exposed the abdominal organs, to find a retroperitoneal cyst, a hydronephrotic kidney. Many surgeons under such circumstances have resorted to the formation of an abdominal fistula, thus draining the distended pelvis of the kidney—a very unwise procedure, because a lumbar fistula will accomplish the same object, the formation of which is attended by less danger, and eventually, if it should become necessary, a nephrectomy is attended by a great deal of difficulty if previously the organ has been attached to the abdominal wall. So that I should lay down the rule that in hydronephrosis, whether diagnosticated before or during the operation, the surgeon should make a lumbar nephrotomy.

Then comes that large class of pelvic abscesses without removable walls; abscesses which have had their origin in the pelvic connective tissue, perimetritic abscesses, abscesses originating within the Fallopian tubes, and abscesses within or around the ovary, but in which the careful surgeon will make the most scrutinizing examination before he attempts the work of enucleation. If he finds enucleation impossible it would have been vastly better if he had dealt in a more conservative manner with his patient, and had resorted to abdominal drainage as taught us by Mr. Tait.

In cases of removable affections the surgeon is often forced to drain for two distinct pathological conditions: First, the direct result of the operation—a bleeding, oozing surface; cases in which it is either impossible to secure the vessels by ligating them, or in which

too much time would be consumed in arresting hæmorrhage. We have learned here the value of the Mikulicz drain. I must, however, take issue with Mikulicz and his immediate followers in the technique of applying his drain. He speaks of an iodoform-gauze drain, and any surgeon who has had considerable experience in abdominal surgery can testify to the fact that where the Mikulicz drain is called for we are frequently dealing with large cavities requiring an enormous amount of gauze to fulfill the urgent indication—to arrest parenchymatous oozing. It is in such cases that I have learned to fear iodoform gauze, because the cases are by no means isolated in which a gauze drain composed exclusively of iodoform gauze became the immediate cause of death from iodoform intoxication. This is particularly liable to occur in cases in which the patients' kidneys are not functioning properly or are diseased. It is in such cases that the elimination of the iodoform is accomplished with great difficulty, and hence when accumulation occurs death follows from intoxication. Again, there are cases that are extremely susceptible to iodoform. The smallest amount of this substance may prove fatal from intoxication. I should therefore, in using the Mikulicz drain as a hæmostatic measure, limit the iodoform gauze to an outer layer or two and pack the interior with ordinary sterilized gauze. This advice I am sure you will all appreciate.

There are likewise abdominal operations during which serious complications arise that may constitute a special indication for drainage. I will only allude to cases of pelvic tumors, of pyosalpinx, of extra-uterine pregnancy, complicated by plastic peritonitis, in which sometimes the anterior rectal wall is torn deep down in the pelvis, not accessible to direct measures, and it is extremely difficult, if not impossible, to close the wound efficiently by suturing. It is in such cases that I protect the abdominal cavity as far as possible by interposing between the wound and abdominal contents a few layers of gauze, then establish tubular drainage in direct connection with the visceral wound. I think that almost every conscientious surgeon will agree with me when I make the statement that in all operations for intraperitoneal suppuration, irrespective of the location of the abscess or the extravasated pus, drainage should be invariably practiced.

Again, in pelvic surgery, where an operation is performed *per vaginam*, the same rules will apply, and it is here that I wish to call particular attention to the intelligent and efficient use of the Mikulicz drain as a hæmostatic agent. I have personal knowledge of three cases of vaginal hysterectomy which resulted fatally, the patients hav-



ing succumbed to the immediate effects of hæmorrhage. In these cases clamps were used, and the clamp either slipped or some important vessels were not included in the branches of the clamp. It is in doubtful cases that the surgeon should make use of the Mikulicz drain as additional security against hæmorrhage after the operation. It is again in pelvic surgery requiring vaginal drainage for abscess that I invariably rely upon the tubular drain. I am sure I will come in conflict with the opinions and teachings of a number of the members present when I take a positive stand in reference to the opening and draining of pelvic abscesses, in which during recent years a number of prominent surgeons, without any hesitation, without any compunction of conscience, added to the necessary incision and tubular drainage the extirpation of perhaps an intact normal uterus, thus combining scientific with mutilating surgery. I think the rule will hold good here as elsewhere that surgeons now as well as in the future must learn that all-important rule—that it is bad surgery to unnecessarily remove an intact healthy organ for the purpose, perhaps, of facilitating drainage that by other methods could have been accomplished equally well. It is in such cases of pelvic abscess of perimetritic origin that careful exploration through the vagina, locating the pus, making, what we have practised for years, an incision resembling a partial separation of the uterus from the surrounding pelvic tissue, an old operation but with new applications. What is the use in the case of single, perhaps large pelvic abscess, unilateral, of adding extirpation of the uterus to the opening up and draining of such an abscess? There are, however, several dangers incident to opening a pelvic abscess through the vaginal roof that we shall learn to appreciate as our experience enlarges, and I believe it is the duty of every member of this Society to be honest in making his reports, to make free confession of his shortcomings, of his mistakes, of his misfortunes, because it is only in that way that we make actual progress. It has happened to me twice, gentlemen, in opening a pelvic abscess through the vaginal roof, to have also opened the bladder—only a temporary evil, it is true, because permanent drainage of the bladder with Sims' catheter succeeded in the course of a few weeks in closing the communication between the bladder and the adjacent abscess, but, after all, a very unpleasant complication for the time being. That I was perhaps not entirely to blame for making such a mistake, you will all understand that in pelvic abscess the mutual relations between the organs often become so seriously changed by antecedent plastic adhesions that the bladder may become displaced to one side or the other in

such a way that it is almost impossible by the best method of operation, based upon anatomical knowledge, to avoid making such mistakes. But I do think that in the future I shall be a little more careful. If I have any suspicion whatever of the bladder being in a malposition, I shall locate it accurately by distending it, as a preliminary measure to exploration of the pelvic abscess by means of an exploratory needle, and then opening the abscess with the knife point of a Paquelin cautery. I have operated upon numerous cases of pelvic abscess by a single point of incision and drainage, and have accurate statements from patients months and years after the operation in reference to the permanency of the good results.

A few words in reference to the technique. From a practical standpoint we must divide the technique of drainage, whether *per vaginam* or through the abdominal wall, into three distinct classes—namely, tubular, capillary, and combined drainage. In cases of drainage made for arresting hæmorrhage, as a matter of course we rely upon the gauze tampon. In cases where we expect no serious hæmorrhage, but rather copious serous effusion (the product of the primary wound secretion), I invariably combine tubular with capillary drainage—that is, I take one of Keith's tubular glass drains, pack it lightly with one strip of iodoform gauze, which is an enormous advantage over the older methods of tubular drainage, by removing the fluid from the drain by means of a syringe. In such cases the tube keeps the wound canal wide open, and the gauze drain is sufficient to lead the bloody serum into the hygroscopic dressing. It therefore greatly diminishes the danger from post-operation infective. Drainage by the use of aseptic wicking is only a modification of the ordinary gauze capillary drain. To recapitulate, when I drain for pus, whether through the abdominal or pelvic incision, I invariably resort to tubular drainage, and for the removal of serum combined drainage; while capillary drainage by means of a tampon is reserved for cases in which it becomes necessary to arrest hæmorrhage by this method.

## DRAINAGE IN PERITONEAL SURGERY.\*

BY HENRY T. BYFORD, M. D., CHICAGO.

In answer to the invitation to discuss drainage in abdominal and vaginal section, I will briefly give the impressions I have gained from personal experience.

Drainage in peritoneal surgery is for the purpose of removing from the peritoneal cavity or neighboring wounded tissues irritating or septic matter that has been introduced at the time of the operation or that finds lodgment there subsequently. When it is possible to prevent the introduction or accumulation of such matter, drainage is of course unnecessary. When such prevention is impossible, it becomes a question of judgment as to whether the irritating or septic matter will in a given case cause only slight symptoms or give rise to serious consequences.

There is danger in leaving irritating matter, such as bloody effusion from raw surfaces, and there is sometimes danger in draining. When the nursing after the operation is not absolutely reliable, most surgeons would prefer to allow the peritonæum to take care of a moderate amount of effusion. When good nursing and personal supervision follow the operation, drainage is preferable if there is any doubt as to the ability of the peritonæum to absorb the fluid. When extensive oozing surfaces are left, and septic germs can not with certainty be excluded or removed, the surgeon who does not drain assumes a great responsibility.

The chief hindrance to a just appreciation of drainage is the fact that either the appropriate and best methods are not always employed or understood, or else not properly carried out.

In the first place, the drainage must be adequate. It must afford a ready exit to the offending material.

In the second place, it must include means for the prevention of infection by way of the drainage-tube or material.

In abdominal operations it is not always sufficient to drain the *cul-de-sac* of Douglas or the lumbar regions. It must be determined where the effusion will accumulate, and the tube or gauze must reach these places. In one case I used three drainage-tubes with success. In others I have used both a drainage-tube and gauze. In nearly all

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\* Read before the Chicago Gynæcological Society, January 17, 1896.

cases I find it advisable to administer salines as soon after the operation as the stomach will tolerate them for the purpose of causing peristalsis, and thus of preventing adhesions of the irritated peritoneal surfaces to each other and to the raw surfaces. In this way pocketing of effusion is prevented, and its flow toward the drainage-tube or material is facilitated.

After transperitoneal nephrectomy, drainage by gauze strips through a puncture in the lumbar region is preferable, although after large tumors the capsule can sometimes be stitched into the abdominal wound and drained, the wound being then extraperitoneal. Transperitoneal tubular drainage has, however, proved practical in my experience. After operations upon the intestines and abdominal viscera, drainage through the abdominal walls must be employed.

After operations upon the pelvic viscera, either abdominal or vaginal drainage may be made use of.

Operations involving trauma high up in the pelvis should ordinarily be drained by the glass tube extending from the lower portion of the incision down to the bottom of the pelvis. If, however, there is excessive oozing, or a large septic surface left in the pelvis, the gauze packing or Mikulicz drain is better, for it acts as a tampon, as a drain, and as an isolator of the infected or inflamed area. The danger of paralysis or obstruction of the intestines from adhesion of the latter about the gauze gives it dangers that do not belong to the tube, and should restrict its use in such cases to those absolutely requiring it.

When pelvic-bound tumors are removed, leaving the bottom of the pelvis almost entirely denuded of peritonæum, drainage into the vagina by means of the gauze tampon is often necessary to keep the intestines out of the wounded area and the fluids from contact with the general peritoneal cavity. A judicious use of vaginal drainage is the enucleation of the worst forms of pelvic-bound tumors, and in papillomatous, tuberculous, and malignant tumors adds greatly to our success in abdominal sections for such conditions, and enables us to operate upon cases that would otherwise be unfit for operation.

It may even become necessary to remove the uterus to facilitate vaginal drainage. When growths of this kind are of moderate size it is sometimes safe to remove the uterus by way of the vagina, enucleate or disintegrate the tumors through the space thus provided, and then practically shut off the peritoneal cavity from above by the gauze tampon and drain. When vaginal section is performed, either gauze or a rubber tube may be used.

In cases of removal of the uterine appendages through an incision

in the posterior vaginal fornix, a short rubber tube, whose lumen is about one third of an inch in diameter, is all that is necessary in most cases. The act of vomiting and other motion of the body force the effused fluid through the tube into the gauze which envelops the external end within the vagina. After thirty-six hours the tube should be drawn out by means of a string previously attached. I have employed this kind of drainage in a large number of such cases with good results.

In quite a proportion of the cases in which drainage is necessary the oozing is so free that a gauze packing is better. This of course makes it necessary to leave quite a large vaginal opening to contract gradually.

When the uterus is removed *per vaginam* the gauze drain is, I think, preferable, and should project only as far as the stumps and oozing surfaces; never up among the intestines.

The second requisite of successful drainage—viz., the prevention of infection—can usually be attained, and when attained, the chief objection to drainage disappears.

The glass tube for abdominal drainage should be too small to admit a lead pencil. When I see some of the drainage-tubes used I am always reminded of stove pipes that are made to let a draught of air through them. Their contents should be drawn every hour or two, never at longer intervals, and this by means of a sucker, not by a swab, as the latter tends to force some of the liquid back into the peritoneal cavity. A strip of gauze should be kept in the tube between the dressings. The tube should be removed in from thirty to forty hours. The wound should not then be closed by a suture, but a narrow strip of gauze should be passed into it through the abdominal walls with a probe and be left for four or five hours. If the tube is slim enough, and the wound has been tightly sewed around it, the parts will come together about the gauze, which dries the surfaces and secures a primary union after its removal. The drainage site should afterward be washed off with a 1-to-2,000 solution of corrosive mercuric chloride twice daily.

When the Mikulicz drain is used, about one quarter or one fifth should be removed each day, and while the strip is being pulled out all of the blackish bloody fluid that appears at the surface should be soaked off with sterile absorbent cotton. After the tampon is all out a little fresh sterile gauze should be introduced every three or four hours for two or three times to keep the wound dry, provided there is still space for it.



When a large gauze packing is left in the pelvis and brought out from below, it should be removed in a gradual manner. When but little projects into the peritoneal cavity, as is usual after vaginal hysterectomy for carcinoma or small fibroids, it should be left for about four days and then be removed all at once, and be followed in a few hours by mild antiseptic douches.

The vulvar dressings should consist of an abundance of sterilized absorbent material and be changed every three or four hours. All manipulations of tubes or gauze drains should be by sterile hands with sterile materials.

In conclusion, I wish to emphasize the fact that I do not believe in drainage when it can be avoided. At the same time I have no fear of drainage when I have one of my trained nurses to take care of the tube. I should therefore consider myself culpable if I were to add to the dangers of an operation by unduly prolonging it for the checking of moderate oozing. Neither should I feel justified in taking any risk in leaving either blood or material that might be septic without providing for adequate drainage.

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## DRAINAGE IN ABDOMINAL SECTION FOR PELVIC DISEASE.\*

BY T. J. WATKINS, M. D., CHICAGO,

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The term "drainage" as here considered is to be understood as referring to the removal of fluid, to keeping the intestines or other organs separated from necrotic or infected tissue, and to tamponade for hæmorrhage.

### I. GENERAL INDICATIONS.

The general indications for drainage are :

1. General septic peritonitis.
  2. Escape of septic matter into the general peritoneal cavity.
- This may occur prior to or during operation. When it occurs before operation, general septic peritonitis will ordinarily be present. The

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septic matter may be the contents of the intestine, of an abscess, a cyst, or an hæmatocele. Drainage on account of rupture during operation is seldom necessary, because in such cases the intestines are usually protected by gauze or sponges, and the infected portion of the abdominal cavity can be thoroughly cleansed.

3. The presence of a large amount of necrotic or septic tissue which can not safely be removed. This condition may result when old and extensive adhesions are present, when an abscess occurs primarily or secondarily in the pelvic cellular tissue, when a cyst has become so firmly adherent and necrotic that it can not be removed, and when an hæmatocele has become infected. Drainage in this condition not only permits the escape of necrotic tissues, which slough away, but also prevents contact infection of the intestines.

4. Hæmorrhage which can not be readily controlled by suture, ligature, temporary pressure, hot sponges, etc.

5. An injury to the intestine in which there is danger of the occurrence of fæcal fistula.

## II. THE ROUTES OF DRAINAGE.

The routes of drainage are :

1. Abdominal.
2. Vaginal.
3. Vagino-abdominal.

Until recently the abdominal route has generally been employed for drainage in abdominal section for pelvic disease ; the vaginal route is now frequently used, and my belief is that it will soon be employed in nearly all cases which require drainage.

The advantages of the abdominal over the vaginal route are :

1. The production of an additional wound is unnecessary. This, however, is of no special importance, as the vaginal wound is small and is easily made.
2. The drainage does not pass through a septic canal. This objection is theoretically very strong, because the vagina can not be rendered perfectly sterile. The results of operations carefully done in and through the vagina, however, demonstrate that the vagina can be made practically aseptic.

The advantages of the vaginal over the abdominal route are :

1. The most dependent portion of the abdomen is drained.
2. Drainage is downward.
3. The surface which usually requires drainage is in more or less close proximity to the vagina.

4. The danger of hernia is diminished.
5. Fewer adhesions must of necessity occur, as the abdominal cavity is kept more free from exudates.
6. There is less danger of infection of the abdominal wound.
7. When the gauze drain is employed, much less pain is occasioned upon removal of the drain.
8. There is less danger of infection in the after-treatment of the patient.

The abdominal route is the better mode of drainage to employ when the surface to be drained is near the abdominal incision, as, for instance, when a pyosalpinx is adherent to the abdominal wall or to the anterior surface of the broad ligament of an anteverted uterus, when an opening into the vagina can not be readily made on account of extensive adhesions of the uterus to the rectum, and when a septic disease of the vagina or vulva is present. Under all other conditions I consider drainage by the vagina preferable.

The vagino-abdominal route may be employed when the indications for both routes are present.

### III. VARIETY OF DRAINS.

1. *Tubes*.—The tubes usually employed are of soft rubber or glass. The glass tube is better for abdominal drainage than the soft rubber, because the latter is liable to become occluded by pressure or flexion. The rubber tube should, in all probability, be always used in preference to glass for vaginal drainage. More thorough drainage can always be obtained by tube than by gauze, and the tube should therefore always be employed in cases of general septic peritonitis. Gauze may be used in connection with it when it is indicated for the control of hæmorrhage.

When irrigation is necessary, the tube drain is invaluable. For this purpose two tubes should be used—one large and the other small, sewed together at the inner end. The larger tube should be perforated as far as it extends into the abdominal cavity. The tubes should be fastened by suture to the incision in the vagina or to the cervix.

Tube drainage may be indicated in some cases where septic matter has escaped into the general peritoneal cavity. The rubber tube should extend one or two inches outside the vulva; the outer end should be thoroughly covered with antiseptic gauze, and the gauze should be changed as often as it becomes moist. More active drainage may be obtained by leaving the tubes longer so that they may be

bent down over the perinæum and a siphon action be thus produced.

2. *Gauze*.—The gauze drain should usually be employed for the second, third, fourth, and fifth general indications for drainage, as stated above. By means of gauze the infected portion of the peritonæum can, as a rule, be kept separate from the non-infected portion, and capillary hæmorrhage can be controlled. Experiments have shown that the capillary action of gauze is weak, but my experience has been that, when the gauze drain is carried through the vagina, no accumulation of fluid in the peritoneal cavity has occurred. When gauze drainage through the abdominal wound is employed, however, accumulations so frequently occur that it is now my custom, when I employ an abdominal gauze drain, to introduce a short rubber tube between the gauze drain and the lower angle of the wound.

A method of abdominal gauze drainage which I first saw Dr. E. C. Dudley employ is so much better than the Mikulicz that I never employ the latter. The method is as follows: The end of a piece of gauze two feet wide, folded to the desired width, is carried down to and covers the surface to be drained. The sides of the gauze are folded about any raw surface that may be lateral to the uterus, and the gauze is allowed to project about one or two inches from the abdominal wound. Strips of gauze are packed between the wide layer of gauze and the pelvic organs, if necessary, to control hæmorrhage. This gauze should be placed before the sponges which cover the intestines are removed. In some cases the wide layer of gauze is unnecessary, and only a narrow strip of gauze is required. The rough edges of the gauze should be turned in and sewed.

#### IV. TECHNIQUE OF VAGINAL GAUZE DRAINAGE.

In all cases of abdominal section where vaginal drainage may be needed the vagina is prepared before operation as follows: The pubes and vulva are always shaved, and the vulva and vagina thoroughly cleansed before the patient is anæsthetized. In narcosis the vagina and vulva are again thoroughly cleansed and disinfected. The uterus is then dilated, thoroughly curetted, and, if septic, is packed with iodoform gauze.

Before the sponges which protect the intestines are removed, the point of a long, sharp-pointed scissors, curved on the flat, is pushed from the vagina into the peritoneal cavity posterior to the uterus. The blades of the scissors are then separated and the scissors withdrawn. With one finger in the vagina and a finger of the other hand

in the peritoneal cavity, the opening thus made is dilated to the desired size.

A piece of gauze two feet wide and folded is now carried through the opening into the vagina, caught by the fingers, and pulled out over the vulva. As little of the gauze as will be required to cover the necrotic or infected tissue, or to check hæmorrhage, is left in the peritoneal cavity. The punctured wound will not bleed unless the tissue is indurated. If hæmorrhage occurs, it may be necessary to pass a suture or to apply forcipressure through the vagina. In cysts of the broad ligament the puncture may be made directly into the cyst and the drain applied. Little or no more time is required for vaginal gauze drainage than for abdominal gauze drainage.

The advantages of the vaginal gauze drain over the abdominal gauze drain are apparent upon comparison of the two accompanying illustrations.



FIG. 1.—Vaginal gauze drainage.

The abdominal gauze drain is all removed at the end of twenty-four, forty-eight, or seventy-two hours; the dressings which cover it are changed as often as they become soiled.



The vaginal gauze drain is usually removed at the end of twenty-four hours, but may be left for forty-eight hours. The vaginal tube drain should not be removed as long as a moderate amount of discharge continues.

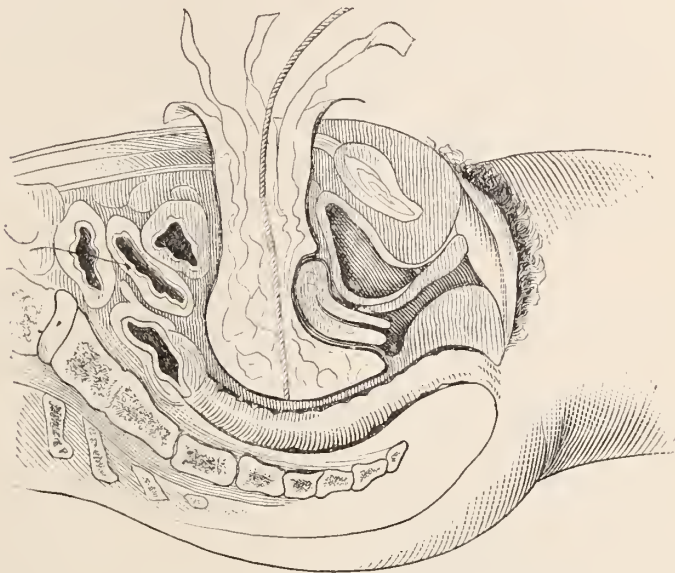


FIG. 2.\*—Mikulicz drain. (Montgomery.)

#### V. PERSONAL EXPERIENCE.

From what has been said above, it may be inferred that the abdominal drainage-tube has no place in drainage in abdominal section for pelvic disease. I have employed it in only one or two cases during the past two years.

I have employed the abdominal gauze drain in about fifty cases. In a number of these cases it has proved inefficient so far as the removal of the fluid was concerned. In some cases its early removal has been necessitated by infection from an accumulation of bloody serum. Its removal ordinarily causes severe pain to the patient. In a few cases sinuses have persisted for a considerable time, and in two or three cases ventral hernia has to my knowledge resulted. In one case of double pyosalpinx complicated with appendicitis death resulted, as I believe, from an accumulation of fluid in the abdominal

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\* From *An American Text Book of Gynecology*, with permission of the publisher.

cavity. I have never employed tube drainage through the vagina after abdominal section, because I have operated the few cases of general septic peritonitis that have been under my care through the vagina.

I have employed the vaginal gauze drain in twelve cases, and it has never failed to act satisfactorily. Its removal usually causes the patient but little pain. Although some of the cases were desperate, all the patients have made good recoveries.

93 EAST EIGHTEENTH STREET.

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## THE ADVANTAGES AND TECHNIQUE OF CAPILLARY ABDOMINAL DRAINAGE.\*

BY WELLER VAN HOOK, A. B., M. D.,  
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The time limitation on the present occasion demands that the subject assigned for discussion be treated in a manner so brief as to be almost fragmentary. I shall therefore invite your attention to but two general problems in abdominal drainage: first, the requirements demanded of a drain *in the free peritoneal cavity*, briefly explaining the reasons why I prefer capillary drainage; second, I shall occupy a few moments with a consideration of the best methods of utilizing the capillary drain, leaving to others, for the present, the large and important subject of the indications for drainage.

The first problem of drainage of the abdomen is the mechanical removal from the abdominal cavity of a certain quantity of fluid per hour for a certain number of hours. What is the quantity to be removed per hour, and what the number of hours during which this mechanical process must be kept up, we can not foretell even when individual cases are before us, since we have no means of estimating the secretory activity of the peritonæum on the one hand, or its resorptive power on the other. Consequently I conceive it a general principle which will be undisputed that when a drain is applied it must be of sufficient capacity to remove as many ounces of fluid per hour as the peritonæum under the pathological conditions present can

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possibly demand. Insufficient drainage, where drainage is employed at all, must be calamitous, especially in the presence of bacteria, which we know are present even in the majority of aseptic laparotomies, since the micro-organisms may grow in the accumulating fluids.

The operator who wishes to remove fluids from the abdomen thinks first of all of the various excavations and projections upon the posterior wall of the abdomen as being in his favor from a hydraulic point of view, since they have some tendency to cause the fluid to collect in puddles by force of gravity.

To withdraw large quantities of fluid from the abdomen in a given time Koeberlé first used the glass tube. To reach the bottoms of the various valleys of the abdomen Keith lengthened and, where necessary, bent the tube.

Keith's improvement was long the ideal of abdominal drainage. But neither Koeberlé nor Keith had fully overcome two other important physical factors in the problem—viz., the action of gravity and the mechanical interference offered to drainage by the intestines.

The first of these difficulties was met by aspirating the contents of the tube at stated intervals, a process which leaves the tube, at best, with some vestiges of fluid in it, and which between the acts of aspiration permits the bacteria, as Welch has pointed out, to overcome the bactericidal action of the fluid and grow in it, provided, as they are, with a retreat safe from contact with the tissues. Besides, we must not neglect the great danger of infecting the tissues about the tube at the frequent dressings.

It remained for capillary drainage to solve both these problems at once, the strands or masses of capillary material being placed, if necessary, between the intestines or other viscera, and at the same time elevating the fluid to the dressings outside the abdominal cavity. We have now learned that the application of the gauze directly to the infected or injured surface insures the immediate removal of the secretions to a safe distance.

Thus we see that the most fundamental principles of wound treatment are violated by the use of the drainage-tube in the abdomen, while the capillary drain fulfills these requirements.

A physiological requirement is likewise met by capillary drainage and violated by tubular drainage—viz., that a minimum of damage must be inflicted upon the peritonæum. The unyielding glass tube inevitably injures the delicate peritonæum when pushed and pulled about by the respiratory and other movements of the abdominal walls, and by the vermicular action of the digestive tube. The gauze yields

easily to all pressure from without, and injures the peritonæum to so slight an extent that most writers regard its effects in producing adhesions, aside from the coincident action of bacteria, as almost if not quite *nil*. Kelterborn\* lays special stress on the action of infection as the most important factor in the causation of adhesions.

The value of capillary drainage is great in meeting the requirements of a means by which currents of infectious fluid may be diverted from uninfected areas and the morbid tissues be inclosed and cut off from the normal areas.

No case with which I am familiar illustrated so many advantages of capillary drainage as one mentioned by Gubaroff,† in which a section was made upon the body of a woman who had submitted to intestinal resection of the colon. The patient had died thirty-six hours after the operation as a result of a purulent and very malignant peritonitis. All those points which had been in contact with the gauze were entirely healthy, and the serous coverings of the viscera had preserved not only their pale tone of color, but also a part of their polish. About ten centimetres around the drainage material the intestine was inflamed and covered with thin fibrinous pseudo-membrane; here there were no signs of pus demonstrable, although the gauze had come in direct contact with those places where the intestinal ends had been sewed together and where one would expect a leakage of intestinal contents. In the neighborhood of these adherent points—*i. e.*, ten centimetres from the surface of the drain—one came into the peritonitis area.

The influence of the drain, we may safely infer, extends at least ten centimetres in every direction about the gauze.

A very great advantage of the gauze drain lies in the fact that its presence, by favoring the destruction of a certain number of peritoneal cells and of white corpuscles, brings about a rapid coagulation which materially favors the arrest of hæmorrhage. The impossibility of reaching the various anatomical subdivisions of the abdominal cavity by means of tubular drains needs only to be mentioned.

Here, again, the gauze has an important advantage, since it may be harmlessly pushed in various directions in the abdominal cavity. This advantage some operators, it seems to me, very thoughtlessly disregard when they roll their gauze into cylinders, as advised by some writers.

The length of time a capillary drain is to be left in the abdomen

\* *Cent. f. Gyn.*, No. 51, 1890.

† *Arch. f. Gyn.*, Bd. xlix, H. 2.

is a delicate point to decide. Gubaroff, already cited, thinks that twenty-four to thirty-six hours is sufficient time for a gauze drain to lose its usefulness in a normal peritoneal cavity by the process of adhesive peritonitis walling it off and mechanically preventing its further action. Graser's recent beautiful researches on adhesive peritonitis bear out this opinion and the similar recorded results of earlier observations. But in the presence of infection and of acute inflammation the case is widely different. So long as the discharge is free, few of us will feel like removing the gauze lest peritonitis be the result. We must not forget that a capillary drain may, after several days' use, deliver less fluid because of its surface being to some extent covered up and blocked by a fibrinous deposit or by the accumulation in its meshes of quantities of cells, the gauze acting like a filter, so that for chronic discharges tubular drains give better service.

It would be wrong to omit the mention of the great assistance that both tubular and capillary drainage receive from intra-abdominal pressure. Tubular drainage is especially dependent upon it.

The value of capillary drainage depends, first, upon the material selected, and secondly upon the skill displayed and the method chosen in its application. These matters have, I believe, been too little analyzed by writers on abdominal technique, although experienced operators do not go astray.

In the first place, the choice of material would theoretically demand the use of fibers of a minimum diameter, since the activity of capillary movements varies inversely with the diameter of the capillary tube. Hence we would select, if this were the only consideration, silk or spun glass. For the same reason we would choose a fabric of a very fine mesh in order that a maximum number of conducting tubes might be included within a given sectional area. Practically, however, these considerations are outweighed by the fact that our ordinary hydrophile cotton gauze has been found universally efficient, since its volume can be increased sufficiently to meet the physical requirements. Cheapness and convenience are additional advantages of gauze.

But too much importance can not be ascribed to the proper preparation of the gauze. It should be free not only from added gums or resins, but also from the oil of the crude cotton fabric. It should be as actively "hydrophile" as possible. Doubtless every surgeon has met with cases in which commercial gauze, by failing to attract water, has acted as an obturator instead of a drain. If gauze is properly prepared, lamp wicks have no advantages from a capillary point of



view, while their limitations of thickness, length, and breadth are a distinct disadvantage.

The position of the patient in the application of the drain is not too unimportant to be worthy of mention. The elevation of one end or side of the operating table will cause the intestines to move in the direction desired.

It is important that the strips of gauze be carried in each instance to the bottom of the abdomen, for if this is neglected fluid will collect below the gauze. The gauze will tend to be displaced by intestinal movements and will be rolled into useless ropes, lacking sufficient contact with the peritonæum to produce the friction necessary to hold it in position.

In operations in which septic foci are likely to be opened it has seemed to me good practice to apply at once on opening the abdomen those layers of gauze considered necessary as permanent protecting material. The pus is then caught on sponges and the drainage left undisturbed, since its removal and replacement inevitably results in contamination of the uncovered parts.

As has already been said, the quantity of gauze introduced must be sufficiently large to insure ample drainage; otherwise it may, by blocking the exit of fluids, do more harm than good.

I desire to present to the Society a simple device by which the draining power of gauze masses may be greatly increased. If two pieces of gauze of the same quality and breadth, but of different lengths, be hung over the edge of a receptacle containing water in such a way that both project equally into the fluid, it will be found that the longer piece of gauze will deliver from the receptacle a strikingly greater quantity of water than the shorter piece.

At first I thought this was due to a siphon action. But the slightest consideration served to show that as the individual fibers are not air-tight tubes extending continuously from the surface of the water in the reservoir to the end of the gauze, the conditions of siphonage are not supplied.

The explanation lies in the fact that, in the case of the long strip of gauze, the water is removed from the overhanging arm with great rapidity, the downward movement being accelerated by gravity as well as by downward capillarity in the overhanging part. While these forces act in the case of the short strip in exactly the same way they do not act in the same degree.

This is better understood by referring to the familiar movement of oil in a lamp wick when the oil at the top of the wick is ignited. A

large volume of oil passes upward because the upper end of the wick is kept dry by the flame, which consumes the oil as fast as delivered; but before the lamp is lighted no oil flows out.

The practical application is: *Provide for free, perfect delivery of abdominal fluids from the drainage gauze.* This may be done in two ways: The first and best, by leaving the strips of gauze long enough to fall over the patient's flank into the dressings at the side and back. The second method consists in the careful adjustment of the hydrophile dressings in such a manner about the drainage gauze that a capillary joint between the two will be effected.

In several recent cases of appendicitis in which these plans were carefully followed, the enormous serous discharge wet the bedding beneath the patient repeatedly, while some of the cotton at the surface of the abdominal dressing was scarcely moistened. The extreme importance of employing cotton and gauze of unimpeachable hydrophile quality needs only to be mentioned to be appreciated.

The following propositions seem to me to be justly deduced from the foregoing considerations:

1. Since the quantity of fluid to be removed per hour can not be more than approximately estimated, the amount of drainage material employed must be well equal to maximum requirements.

2. Capillary (gauze) drainage has the advantage over tubular drainage that a minimum amount of damage is inflicted upon the peritonæum.

3. Capillary drainage acts independently of gravity and suction apparatus, and delivers a constant current of fluid.

4. By its appropriate disposition among the peritonæum-clad viscera it not only aids coagulation in ruptured capillaries, but carries away fluids secreted at some distance (ten centimetres) from the limits of the gauze, since capillary action takes place between the closely approximated peritoneal surfaces.

5. The amount of plastic reaction depends more upon the infection present than upon the action of the gauze.

6. The utmost attention should be paid in septic cases to the accurate application of gauze over the uninfected surfaces of the peritonæum near the focus of infection, and this gauze should not be disturbed or replaced during or at the end of the operation.

7. The strips of drainage gauze should be left long in order that, hanging over the side of the abdomen, the fluid from the peritonæum may be delivered with great freedom and rapidity into the dressings.

NEW OPERATIONS FOR THE CURE OF NON-MALIGNANT  
STRICTURES OF THE RECTUM.\*

BY JOSEPH B. BACON, M. D., CHICAGO.

The history of surgery shows that the treatment of non-malignant strictures of the rectum has been far from satisfactory, and that the malady has baffled the skill of surgeons. While the patients were temporarily relieved, the inevitable return of the stricture and final obstruction of the bowel, or perforation of the ulcerated gut above the stricture, or the gradual amyloid visceral changes due to the pus infection from the ulcerated surface, gave results so sad that it was of small consequence to the patient whether the stricture was malignant or non-malignant.

The common practice among surgeons has been to gradually dilate or divulse, or to perform internal or complete proctotomy. Gradual dilatation by means of hard or soft bougies is an excellent palliative remedy for strictures situated in the lower third of the rectum, but in strictures above this point nothing can be more dangerous. It is the rule in stricture of the rectum for the mucous membrane, and often the muscular coats of the gut, to be the seat of ulceration that may vary in degree even to all but perforation into the perirectal space. Passing a bougie is very liable in such cases to perforate the thinned gut wall and so to cause death. At best, the treatment by bougies is rarely curative, and usually necessitates an indefinite prolongation of the treatment and its accompanying risks. The accidents and deaths accompanying divulsion have been so common as to cause, practically, all surgeons to abandon this operation.

Linear internal or complete proctotomy has, as a rule, been ultimately disappointing, not only on account of the return of the stricture, but also by reason of the frequent occurrence of fæcal incontinence after the division of the sphincter ani muscles. The incision, which leaves an open wound, gradually unites by granulation, and, with few exceptions, adds new fibrous tissue to the old stricture, and in from one to two years the patient's condition is as bad as or worse than before the operation.

Electrolysis has of recent years had its enthusiastic admirers, but the surgeons who have tried it are gradually becoming discouraged

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\* Read before the Chicago Gynæcological Society, December 20, 1895.

with it, and at present consider the method but little if any better than gradual dilatation by means of bougies. When the period of aseptic surgery arrived surgeons felt sure that by excising the stricture, even in those cases where the peritoneal cavity would necessarily be opened, and by reuniting the gut by end-to-end approximation, they would be able to successfully treat these strictures. The fatalities following the operation, however, made their statistics most discouraging. The tension upon the sutures was so great that frequently they gave way, and infection of the peritoneal cavity resulted. In many cases the ulceration above the stricture was so extensive that suturing was almost impossible.

With the advent of the large Murphy button the results of end-to-end approximations were much better, and the danger from stitch fistulas and peritoneal infection was reduced to the minimum. Thus the immediate results of the excision operation were a pronounced success. The remote or secondary results, however, proved a failure with every form of end-to-end approximation. The circular cicatrix left either by the button or the sutures acted as a center of irritation to the enormous amount of fibrous tissue in the rectal walls, and, together with the fascia in the pelvis, added new cicatricial tissue, and the gradual contraction eventually formed another stricture. It was exceptional for any case to terminate otherwise. The rectum is imbedded in fibrous tissue, and any wound of this organ must leave a more dense cicatrix than at other parts of the intestinal tract. It is a well-known pathological fact that the fibrous tissue adjacent to a cicatrix becomes hypertrophied and finally contracts, and thus adds to the original scar. If this be circular, as in the rectum, a mild stricture is formed, which, by irritation from peristalsis and the passage of faecal matter, becomes more and more formidable by the changes in the anastomotic fascias and connective tissue.

With this discouraging result shown by the literature upon the subject, and with quite a number of unsuccessfully treated cases of rectal stricture in my practice, I determined to try to devise a method for permanent cure. I therefore began a series of experiments upon dogs, and have devised a method that I think will permanently relieve all strictures situated above the levator ani muscles, and stricture in the female which extends down almost to the internal sphincter muscle, as the vagina can be separated from the rectum. The operation is practically as free from risk as any ordinary laparotomy, as the following case will show :

Dr. Effie Lobdell, of the Harvey Hospital—who sent the case to

me, had the patient under her care for the past year, had given her a long and thorough treatment with potassium iodide, and had frequently dilated the stricture with bougies—furnishes the following history :

“Mrs —, English, aged fifty-three, twice married, had twelve children by her first husband ; all well developed and healthy except the last, which died soon after birth. Has also had one stillborn child and two miscarriages. Patient has usually had good health. Mother died of old age, father of supposed cancer of the rectum at fifty-five. Brothers and sisters all living and in good health.

“Patient has had gonorrhœa twice, and twenty-eight years ago contracted syphilis. A servant ‘cured’ her of the former. The husband administered mercurials to her for the latter, and she was salivated, losing all her teeth and hair. Had a general eczema over the trunk of the body. A physician finally effected a cure. During this year she was delivered of her last child, which showed characteristic marks of syphilis and died in a few days. Since that time her health has been excellent until three years ago. She has suffered from chronic constipation and hæmorrhoids, both internal and external, for which she underwent operation at a hospital in 1892, during which the external sphincter was accidentally severed. Last summer she had an attack of nervous prostration ; was in the hospital five weeks ; the trouble in the rectum also began at this time, for which she received no treatment.

“She consulted me for vesical and uterine difficulty, which yielded to treatment, and I incidentally discovered the rectal trouble while treating her. She had had incontinence of fæces for about five years.

“Upon vaginal examination, I found the uterus anteverted, cystocele, laceration of the perinæum and cervix, prolapsed vaginal walls, and incomplete procidentia. The urethra was inflamed and sensitive. She gave a history of cystitis, and complained of frequent and painful micturition.

“Following up the uterus posteriorly with the index finger, I outlined a tumor several inches long and probably two to three inches broad lying along the rectal wall.

“I prescribed for the patient potassium iodide in increasing drop doses, and the accumulation of tissue perceptibly diminished.”

Upon examination, I found a tubular stricture extending from a point just above where the levator ani muscle encircles the rectum up beyond the reach of my finger, and so contracted that my index finger was barely able to enter it. The rectum was filled with pus, blood,



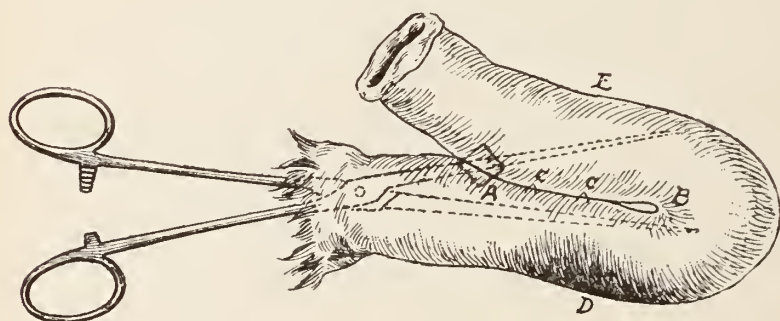
and a great deal of mucus, denoting that there was a large ulcerated surface above the stricture. The external sphincter was greatly relaxed, and the patient was suffering from incontinence of fæces as a result. The muscle had probably been overstretched or divided during the previous operation. I ordered the patient to bed and put her on liquid diet for a few days preparatory to operation. Instructions were given to thoroughly empty the bowels by means of high enemata of a solution of two drachms of ox gall to one pint of water, and to avoid cathartics, as violent peristalsis might rupture the ulcerated gut.

June 22, 1895, assisted by Drs. Ferguson, Lobdell, Waite, and Stremmel, I made an incision into the abdomen in the median line extending from the umbilicus to the pubes. Then, by placing the patient in the Trendelenburg position and crowding the small intestines back with large flat sponges, I could see and feel the stricture and judge of its length, which was between three and four inches. The sigmoid was secured and bent down over the stricture to a point deep into Douglas' pouch below the lower limit of the stricture and the length required noted. The sigmoid was now drawn up to the abdominal incision, and at the point noted one half of the smallest-sized Murphy button was securely sutured in place, and this portion of the sigmoid wrapped in a sponge and left in care of an assistant. Another assistant now inserted the other half of the button by means of a buttonholder through the anus, up the rectum to the lower limit of the stricture, and turned the staff of the button toward the anterior rectal wall. By firmly pressing it against the wall I could feel and see the instrument from above, and by gently nicking the gut over this point the small staff of the button protruded through the gut wall and was sutured in place and firmly held by the assistant with the buttonholder. I next scarified the peritonæum over the stricture and sigmoid, the surfaces to come in apposition from one half of the button to the other. Now, taking the half of the button in the sigmoid, I again bent the sigmoid down over the stricture so as to have the scarified surfaces come in apposition, and united it with the half of the button below the stricture, and thus formed a lateral anastomosis of the sigmoid and the rectum below the stricture. My intention was to suture the approximated surfaces of the rectum and sigmoid together along the scarified surfaces, so as to avoid the possibility of a loop of small intestine getting caught between them and being clamped off when the operation was completed. But on placing the lower half of the button, notwithstanding the great care taken to make only a small opening just for the staff, I noticed that pus and

blood from the rectum entered the abdomen at this point and thus necessitated a drainage-tube with gauze from the bottom of Douglas' pouch. This gauze or Mikulicz drain was now placed and packed so as to firmly hold the sigmoid and stricture in apposition until the scarified surfaces could unite and form a firm sæptum from the button to the upper limit of the stricture.

The abdomen was now closed with silkworm-gut sutures up to the drainage-tube and the wound, dressed with iodoform gauze, was covered with sublimated cotton and a firm roller bandage. Recovery from the operation was uninterrupted.

The drainage-tube was removed on the second day and the balance of the gauze drain on the seventh day. There were liquid bowel

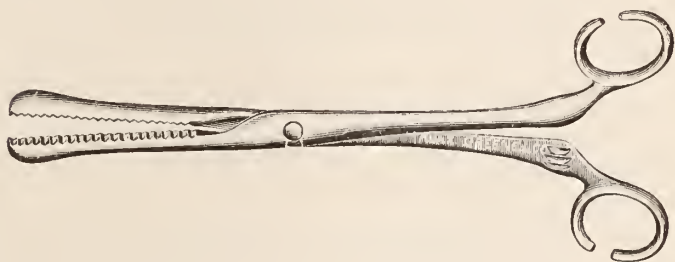


movements daily. The button came away on the ninth day, when an ox-gall enema was given and a good liquid stool secured. These enemata were continued daily, and a good nourishing liquid diet continued until the patient gained strength. A clamp was placed without anæsthesia on the forty-seventh day, which came away on the fiftieth day. The patient was now given a generous diet of good variety and rapidly gained in strength, and after the sixtieth day was up and around the ward.

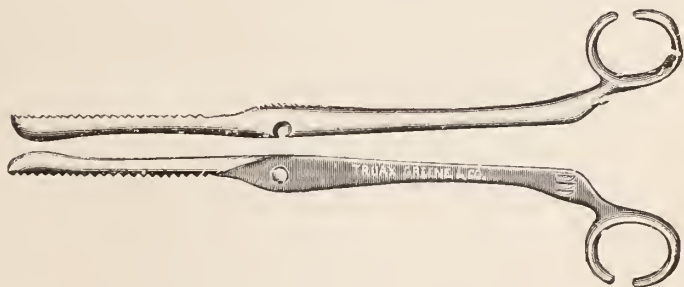
I find upon examination now, although only five months have elapsed since the operation, that the greater part of the fibrous tissue has been absorbed, and that there is a large free opening between the rectum and the sigmoid quite sufficient for the passage of solidly formed fæces. The ulceration above the stricture has greatly improved and will probably soon disappear.

I used the small Murphy button, because all that was required of it was to form a fistulous tract between the sigmoid and the rectum below the stricture so the clamp could be applied to the sæptum. In

this case I did not apply the clamp so as to cut away the whole sæptum, because in so long a tubular stricture it is not necessary to clamp away so much tissue. If from any cause it should be thought best to clamp away more of the sæptum it can be easily done, as there is com-



paratively no pain in the use of the clamp, which can be applied without an anæsthetic. I had this clamp constructed so that one blade could be inserted at a time and then locked. The slots in the handles were left so as to fasten a rubber ring over the handles after the clamp was first placed on the sæptum, and thus gradually clamp away the tissues the first twenty-four hours; then, as the handles were approximated by the elastic pressure of the ring they could be finally clasped together and the sæptum would be severed in a few days. To clasp the instrument the first day might produce too rapid sloughing,



and thus set up a gangrenous spot that would not be limited to the sæptum.

The object in folding the sigmoid upon the stricture is to have a normal piece of gut united to the ends of the stricture band that has been severed by the clamp, and thus to prevent their reunion and the reformation of the stricture.

In this operation there can not be a return of the stricture, and the large opening left for the passage of fæces relieves the irritation of the old stricture tissue, which gradually becomes absorbed. The ulceration of the rectum above the stricture disappears. The sphincter ani muscles are left intact and continence is assured. It is impossible to place the lower half of the button in the rectum without infection of the peritonæum, and therefore a drainage-tube, with packing of iodoform gauze, should always be used to insure drainage and wall off the general peritoneal cavity and thus limit the infection. A stricture formed in the lower end of the rectum extends so near the internal sphincter that it would be rarely possible to use the method as described in the above case.

For this form of stricture I have now operated upon twelve cases, the first one fourteen months ago. The patient has gained about thirty pounds in weight; there is a large free opening where a very tight stricture was formerly located, and I have every reason to think her permanently cured. Even this case is too recent to be assured that the recovery will be permanent. The other eleven are doing well, and in no case has there been any serious complication or sepsis.

The operation for stricture in the lower end of the rectum is simple and quickly performed. It consists in making a mucous fistula around the stricture from a point below its border posteriorly in the median line between the stricture and the coccyx, terminating in the rectum as an inner opening above the upper border of the stricture. A heavy silk ligature is passed by means of a blunt-pointed needle similar to an aneurism needle and left in place for three months, when it is removed, and a probe-pointed grooved director passed through the fistulous tract, and the stricture severed with a Paquelin cautery down to the director. The object is to have a mucous tract at the bottom of the wound that will prevent the ends of the severed stricture from becoming reunited, as is the case in the ordinary linear proctotomy. Theoretically this is possible, but the cases are too recent to prove that the stricture will not recur; still, they show better results than occur after ordinary proctotomy, and this operation does not interfere with the sphincter muscles, which is very important.

SUPPLEMENTARY REPORT OF A CASE OF PUERPERAL  
SEPTICÆMIA OF PROLONGED DURATION AND  
WITH MANIFOLD COMPLICATIONS.\*

BY A. F. CURRIER, M. D., NEW YORK.

I beg to recapitulate the statements made in the preliminary report, and then follow the case to its present issue, finally drawing certain inferences and conclusions which seem warrantable. The patient is a primipara, twenty-two years of age, the wife of a physician in Westchester, of fine physique and excellent constitution. She was delivered October 3d, after a labor lasting twelve hours. The second stage was delayed by a thick vertical vaginal sæptum, and was terminated promptly after the sæptum had been divided. Evidences of sepsis on the third day; intra-uterine douche followed by severe chill lasting several hours. Febrile symptoms intense on fourth and fifth days. First seen by me on the fifth day. Uterus then six inches in depth, walls soft; broad ligaments sensitive and indurated; no perceptible changes in the appendages. Vaginal and uterine discharge abundant and sanious; vaginal mucous membrane gangrenous. Diarrhœa; sweating; unnatural odor of secretions.

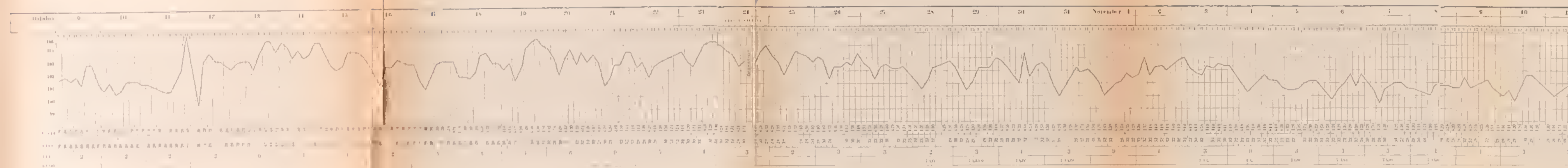
*Treatment.*—Irrigation with hot bichloride solution (1 to 4,000), curettage, pure carbolic acid to sloughing tissues, uterine and vaginal tampon. The following day recession of temperature from 103.8° F. (at time of operation) to 101° F., and of pulse from 140 to 112. The next day the vaginal wound was in an apparently healthy granulating condition. The next day, pain in right pleura and friction sound at base of right lung. An intra-uterine douche was given by her physician, which was followed by severe chill with temperature 105° and pulse 140. The next day the uterus was well contracted, vagina in good condition, but general symptoms severe. The following day the symptoms had ameliorated in the morning, but in the evening they became alarming. Temperature 105°, pulse 150, and death seemed imminent. Strychnine and nitroglycerin hypodermically, and inhalations of oxygen gave some relief. Empyema in right pleural cavity; pneumonia in lower lobe of right lung. Eleven days later the pleural cavity was opened, and eight ounces of offensive pus with fibrinous

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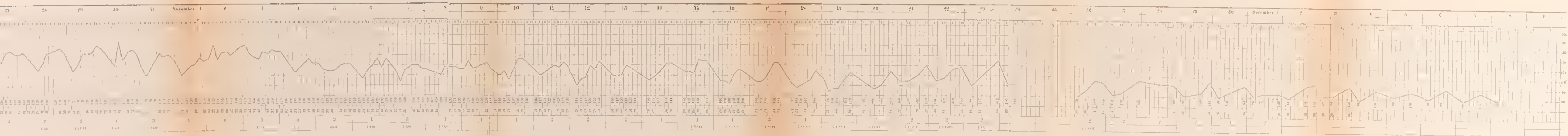
\* Read before the New York Obstetrical Society, December 17, 1895.



clots washed out. Evidences of general sepsis very pronounced ; from two to nine offensive stools daily. Three days later the left pleura became implicated, left side of face flushed, pain and throbbing on left side of head. The daily treatment consisted of fourteen grains of caffeine, one fifth of a grain of sulphate of strychnine, one fifth of a grain of digitalin, nine ounces of whisky, ice cap, and abundant inhalations of oxygen. The following day (October 27th) the caffeine was reduced to eight grains, the strychnine was suspended, and four drachms of phosphochloride of iron were ordered daily. An abundance of water was also given to increase the eliminative action of the kidneys. (The accompanying chart indicates the urinary secretion.) The urine now contained albumin, but no casts ; the facies was dusky ; there was expectoration and cough, and great irritability. Three days later the stools were less frequent and offensive, the countenance more natural, the tongue clean, headache absent, tympanites, which was relieved by turpentine enema. Afternoon temperature,  $103^{\circ}$  ; pulse, 140. Seventy ounces of urine of low specific gravity (1010) were passed on this day. Four days later (November 3d) the symptoms all became severe again, the temperature reaching  $103^{\circ}$  and the pulse 140. The spleen was sensitive and enlarged ; the lungs were now in good condition. The left leg and thigh now appeared sensitive and swollen, and the odor of the breath was offensive. Pyæmia seemed imminent. Warburg's tincture in three-drachm doses was ordered every six hours. Creeping chills were frequently complained of. A week later (November 10th) the condition had greatly improved, the temperature declining to  $99.2^{\circ}$  in the morning, and rising to  $101.2^{\circ}$  in the evening, the pulse varying between 120 and 134. There was now no tenderness of the spleen or liver. Induration along the course of the right internal saphenous vein and the muscles of the right calf was pronounced. Three days later (November 13th) phlebitis was marked in both legs and thighs ; otherwise the condition was good ; temperature,  $99^{\circ}$  to  $101.2^{\circ}$  ; pulse, 110 to 124. By the end of November the temperature had dropped nearly to normal, the pulse did not exceed 110, the sinus in the chest was very shallow, and the general condition was satisfactory. Since then the temperature (as will be seen by the chart) has been normal, while the pulse ranges between 90 and 110. The pulse is still somewhat intermittent when the patient awakes in the morning, but at other times it is the pulse of convalescence. The patient's general condition is excellent, her nutrition good, all sensitiveness along the course of the veins of the legs has disappeared, and she appears to be in a fair way to recover health and strength.



DR. CURRIER: SUPPLEMENTARY REPORT OF A CASE OF PUERPERAL SEPTICÆMIA OF PROLONGED DURATION.



DR CURRIER SUPPLEMENTARY REPORT OF A CASE OF PUERPERAL SEPTICÆMIA OF PROLONGED DURATION AND WITH MANIFOLD COMPLICATIONS







A bacteriological examination was made of the fluid removed from the chest in the hope of finding some clew to the specific cause of the disease. Many varieties of the bacteria of suppuration were found, but none of them could be made to grow. Dr. Lambert, who made the examination, stated that in many examinations of the pus from empyema he had seldom obtained a growth, the pneumococci and streptococci not growing readily in such cases in his experience.

In reviewing this most interesting and important case there are many questions which present themselves for consideration. The factor which is of greatest importance is the youth and superabundant vitality of the patient, which enabled her to weather a storm or series of storms to which the great majority of puerperal women must inevitably have succumbed. The chain of morbid developments—gangrenous vaginitis, septic endometritis, general septicæmia, empyema, pneumonia, phlebitis in both lower extremities, and possible pyæmia and endocarditis—presents a combination which is appalling, and we can only wonder at the resisting force which successfully opposed them.

The supporting and stimulating treatment which the patient received probably had something to do with the favorable issue—how much it is impossible to say, for similar treatment often fails in cases of equal severity. I would lay great stress upon the value of oxygen inhalation in cases of profound sepsis; it has served me well in a number of similar cases. At a critical moment it seemed, more than anything else, to be life-saving. It was most fortunate that throughout the entire history of the disease the stomach was tolerant, and it was always possible to administer large quantities of fluid food. In regard to the surgical treatment it would seem hardly possible that the patient could have survived if the pleural cavity had not been freely opened and the poisonous material which it contained evacuated and drained away. The question of resection of the ribs in such cases is worthy of consideration, but in my judgment it should always be avoided if efficient drainage can be secured without it. Do we, as gynecologists, pay sufficient attention to the surgical treatment of the metastases of puerperal sepsis of this character? With reference to the surgical treatment of the pelvic organs in this case the alternatives which presented themselves when the case was first seen were hysterectomy and curettage with irrigation and gauze tampon. The focus of infection was in the vagina, and perhaps in the uterus; the lymphatics were clearly involved; the patient showed, both by her history and her general appearance, that intoxication was more than local;

the appendages were not enlarged to an appreciable degree. On the other hand, her vitality was such that a hysterectomy would have offered a fair prospect of recovery. There is something repugnant, however, to my mind in the removal from a young woman of an organ of such importance as the uterus, and the question with me always is not Can she recover from the operation? but Can she recover without it? It seems to me that if it were always discussed from this standpoint, and with the additional question—Would the operation be counseled or admitted were the patient my own wife?—fewer uteri would be removed. The argument does not seem to me of any especial force that a few puerperal women have recovered after hysterectomy. We must look further than that. Besides, the record of such operations is not a cheerful one—seven out of nineteen operations in Baldy's table—and who can tell how many more unpublished fatal ones? If there are other successful ones, it is strange, indeed, that they have not appeared in print.

It has been suggested that if hysterectomy is indicated for puerperal sepsis it will be during the first week after delivery—that is, before general infection has occurred. But who is acute enough to diagnosticate the limit between local and general infection? Such a conclusion must necessarily be the veriest guesswork, and so liable to fatal error. A successful operation may only illustrate the fact that some women are able to withstand the shock of the severest operations without justifying the procedure.

So far as my experience has enabled me to reach any conclusion upon this subject, it would seem to me that the number of puerperal women who are proper subjects for hysterectomy is very small, and always will be; that it is limited to those with whom the tubes and ovaries are hopelessly diseased, and that the fixing of a time limit within which the operation is justifiable is impossible, as the virulence and rapidity of development of the infectious elements are not constant qualities.

The method advocated and successfully practiced by Wylie and others of frequent or continuous irrigation of the puerperal septic uterus has to its credit the benefit of experience; but it likewise has numerous failures. It is difficult of accomplishment except by a trained hand, and may result in the extension of the morbid material to the tubes and the peritoneal cavity.

With our present light it seems to me that no method of treatment offers better prospects of success, when the disease is still limited, or apparently limited to the uterus, than curettage, with irrigation and

gauze tampon of the uterine cavity. Drainage of offensive material being the object, I do not see how it can be better secured than with the gauze. The latter is not likely to be harmful if not too tightly placed.

Of equal importance is the careful supervision of the digestive and eliminative functions of the body, and especially the introduction of the greatest possible quantity of nutritious food.

138 MADISON AVENUE.

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## EMBOLISM COMPLICATING ABDOMINAL SECTION.\*

By J. M. BALDY, M. D.,

Professor of Gynæcology in the Philadelphia Polyclinic; Surgeon to the Gynæcean Hospital; Gynæcologist to the Pennsylvania Hospital.

In the *New York Journal of Gynæcology and Obstetrics* for March, 1894, will be found an article by myself on the subject of Phlegmasia Alba Dolens complicating Abdominal Section and Pelvic Surgery. Since writing that article my attention has been fixed more or less constantly upon this complication, and I have come gradually to look upon it as one of great consequence—secondary only to septic peritonitis and hæmorrhage in importance. It seems to me that abdominal surgeons have paid too little attention to this phase of the operation and have not appreciated the condition at its true worth.

In opening the above-mentioned paper I said: "This peculiar condition has been noticed quite frequently during the past year in my surgical practice, and although at no time has it proved dangerous, still it has invariably delayed the convalescence, and has shown itself to be an extremely painful and annoying affection." Since that time I have been forced to alter my opinion as regards the danger, and believe to-day that I can trace the death of at least three women to this cause. Of this, however, I will give you the opportunity to judge for yourselves. Certain it is that this condition has been responsible for a tedious and painful convalescence to at least a dozen or fifteen of my patients during the past few years, and in at least one case has left the woman (now almost two years since the operation) with a permanently painful and lame leg.

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\* Read by invitation before the New York Obstetrical Society, January 7, 1896.

For a description of the condition I can not do better than quote from my former paper: "In puerperal phlegmasia it has been said that 'it occurs for the most part in the second or third week after delivery; is limited to the lower extremity and chiefly to one side, exhibiting to the touch a feeling of numerous irregular prominences under the skin. It is hot, white, and unyielding, and is accompanied sooner or later with febrile excitement. After a few days the heat and hardness and sensibility diminish, and the limb remains œdematous for a longer or shorter period.' This description is a fairly true one of the cases referred to as occurring after laparotomy. The attack begins, as a rule, about or toward the end of the third week after the operation, at a time when the patient is in apparent perfect health and about to leave her bed. The first symptom is the appearance of pain in the hip, followed quickly by swelling of the part. The swelling and pain spread downward rapidly until within twenty-four hours the whole leg is involved. The swelling is excessive and the tissues are hard to the touch, with no evidence of œdema. In a few days the leg becomes less hard and the pain is correspondingly relieved. At no time has any distinct line of redness been observed to follow the veins, although the tenderness is apt to be more noticeable at these points on pressure. The condition has never been accompanied by any septic evidence whatever; in no case has there been even a stitch-hole abscess. All the patients have had an easy and uneventful convalescence up to the period when the attack began. In none of them that can be remembered has the disease for which the operation was performed been a septic one. One leg alone is affected. In this connection it is worthy of note that in one patient from whom the *right* Fallopian tube and ovary had been removed the *left* leg was the one which became crippled. The application of the hand to the affected part conveys the sensation of considerable heat, although after the first day or two the thermometer in the mouth shows no particular rise of temperature. In several instances within the first twenty-four hours the temperature has been found as high as  $101^{\circ}$ , but has fallen to the neighborhood of  $99^{\circ}$  during the next day. On the other hand, some cases have shown no rise from the first. The pulse remains correspondingly good, seldom exceeding 80 or 85 beats to the minute. The condition of mental depression has already been noted, but it has appeared to me that this has arisen more in consequence of the anxiety to return home, and the attendant disappointment, than from the disease. The condition lasts from two to three or even four weeks before the last trace of it has disappeared. It almost invariably

confines the patient to bed for two weeks. The pain and swelling leave gradually and about simultaneously."

At the present time, with a further experience, these additional facts may with advantage be added to the above description. Some few cases have developed as early as the second week after operation; in some cases it has been months before the last trace of the affection has vanished, one case, as before noted, having lasted for two years. Some few of the later developments have been in patients upon whom operations had been performed for septic troubles, these cases, however, being limited to two or three. With one single exception, the left leg has been the one affected, this exception occurring in a case of hysterectomy for fibroid tumor of the uterus; on closer examination, the accompanying depression seems to be part of the disease, its presence being so constant.

The cause of this complication has given me much thought, and I believe I have at last arrived at a correct conclusion concerning it. In looking for the explanation, several facts have been constantly forced to my attention.

In the first place, in but rare exceptions has the operation been performed in the presence of a septic disease; in not a single case has sepsis followed the operation, not even a stitch-hole abscess. The inevitable conclusion to be drawn from these facts is that the complication is not a septic one.

Three deaths have occurred in my surgical practice for which no possible explanation can be given excepting that of embolism:

1. A young healthy mulatto girl on whom I performed hysterectomy for fibroid tumor of the uterus. Operation uneventful; convalescence for four weeks perfect in all respects. She was to have returned to her home on the following day and was in apparent perfect health. She walked out of the ward to the closet, laughing and joking with some of her friends. She was heard to fall in the passageway and was dead within ten minutes. A most careful post-mortem examination revealed absolutely no cause for death.

2. A healthy young negress on whom I performed a hysterectomy for fibroid tumor of the womb returned home after a perfectly normal and easy convalescence. Three weeks later, while talking and laughing with some of the members of her family, in what appeared to be a perfect condition of health, she suddenly fell back upon the bed and died in a few minutes. No post-mortem examination was made, as the facts did not come to my attention until after the funeral. As far as it is possible to tell by a physical examination during life,



the woman did not have an atom of disease other than the fibroid tumor.

3. A white woman upon whom I had performed a hysterectomy had in every way normal convalescence for three weeks. While still in bed, and without any warning whatever, she suddenly became paralyzed, and gradually sank and died in the course of three or four days. A most searching post-mortem examination failed to reveal the cause of death.

A fourth case occurred in the practice of a friend. A pelvic operation had been performed the character of which I do not recall. The patient returned home and a few weeks later felt a sudden pain in one of her arms, followed by swelling, gangrene of the whole arm, and death in consequence.

All things considered, what could have been the cause of death in these four women? I ask, Is it unreasonable to assume that the cause was embolism? It may be asked, Why could not this have been demonstrated at the post-mortem examination? and to that question I could only reply, Have any of you ever tried to find the lesion in a case of embolism of the brain?

Granting these deaths to have been due to embolism, is it far to seek for the cause of the leg lesions, which are, fortunately, the more common? Embolism is, to my mind, the explanation of the existence of this whole group of cases.

If we be correct in this supposition, it seems to me that a valuable hint is furnished us in the line of treatment in pelvic operations which our friends performing vaginal hysterectomies have failed to appreciate—namely, a prolonged rest in bed following the operation, the longer the better.

The complication does not follow any particular lesion or operation. It has been noted in patients who had been suffering from fibroid tumors of the uterus, ovarian cysts, cystic ovaries, pyosalpinx, retrodisplacements, prolapse, and general peritonitis. It has followed such operations as hysterectomy, ovariectomy (single and double), and hysterorrhaphy.

The trouble comes when least expected, and, as far as I can see, there is not much we can do to prevent it. Early rising from bed must certainly tend to increase a patient's risks, and this adds one more reason to the many already existing why a patient should keep quiet and in a recumbent position as long as possible following an abdominal section. Treatment when once a clot has been carried into the brain is apparently useless; the patient dies almost instantly.

Should the clot pass into the circulation of the leg and become lodged in one of the smaller vessels, the patient may usually make up her mind to a few days of pain and swelling in the affected limb, with a gradual subsidence and return to the natural conditions. Absolute rest in bed, elevation of the leg, applications of lead water and laudanum, with possibly an occasional hypodermic of morphine for the purpose of tiding over the acute suffering for a day or two, are the indications. It will be unnecessary to recommend a low diet, as the patient will refuse to eat. Stimulants and massage should be withheld. The condition is one which Nature must relieve, and the less done, excepting to relieve the pain, the better.

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## THE PATHOLOGY AND TREATMENT OF SHOCK.\*

BY EUGENE BOISE, M. D., GRAND RAPIDS, MICH.

"A specimen of ruptured heart was presented at the meeting of the Société Anatomique by Greffo. It was observed in the service of Chaumesse, by Menetrier. The patient, a woman of seventy-one years, was in apparent good health, but had a certain excess of adipose. It was suddenly announced to her that her son was very ill. She was immediately taken with choking, with syncope, and died. At the autopsy a certain quantity of blood was found effused into the pericardium, and a very neat rupture of the posterior wall of the left ventricle. The valves were healthy. The myocardium did not appear to be altered exteriorly." †

This is a case of sudden death from mental shock, and the interesting question immediately confronts us, What was the condition of the heart induced by the shock?

We are told that the pathology of shock is "paresis of the heart and abdominal vessels." ‡

Paresis of a muscle implies weakened contractile power. Rupture of a muscle by its own action is caused only by a sudden unusually violent contraction. Therefore, in the case above cited the shock

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\* Read by invitation before the New York Obstetrical Society, January 7, 1896.

† *Medical and Surgical Reporter*, October 12, 1895.

‡ Gay. *Reference Handbook of the Medical Sciences*.

must have caused sudden violent contraction of the heart; a condition resembling spasm rather than paresis.

This much by way of introduction to a further discussion of the pathology and treatment of shock.

What is the pathology of shock? is a question that has forced itself upon the attention of every observing surgeon. It is a question never definitely or completely answered, yet of prime importance to every operator. It has been almost universally accepted that it is some form of paresis of the nervous system.

In fact, Mr. Mansell-Moullin, in the *International Encyclopædia of Surgery*, says: "Shock is an example of reflex paralysis in the strictest and narrowest sense of the term, a reflex inhibition, probably in the majority of cases general, affecting all the functions of the nervous system, and not limited to the heart and vessels only."

Dr. George W. Gay says: \* "Experimental physiology has demonstrated that in shock there is a reflex paralysis of the heart and abdominal vessels through the medium of the vasomotor system." Other writers give the same or similar pathology, but in no case is the reasoning entirely satisfactory, even apparently, to the authors themselves; hence I have thought that further inquiry and argument might be of interest and benefit. Let me therefore introduce my discussion by this question: Is it not probable that the pathology of surgical shock is in no sense a *paresis*, but rather an *excessive irritation* of the entire sympathetic nervous system, manifested mainly by *excessive stimulation* of the vasomotor (constrictor) nerves?

In the entire symptomatology of shock there are only two facts which apparently antagonize this theory—namely, the lowered blood pressure and the dulled cerebral and spinal functions, but that these are only apparently antagonistic I believe.

It seems to be an established physiological fact that all efferent non-medullated (sympathetic) nerves are excitator in their action; that they tend to exert a steady tonic excitator action whether they be vasomotor or other. And, inasmuch as the great majority are known to have medullated fibers accompanying them, which pass through the ganglia unmodified, and whose action is inhibitory, it is a fair inference that every excitator sympathetic nerve has its corresponding inhibitory cerebro-spinal nerve, and it may be that inasmuch as there is one general vasomotor center, there may well be some general inhibitory center. Be that as it may, all inhibitory nerves (not speaking

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\* *Reference Handbook of Medicine and Surgery.*

of the cranial nerves) arise from the anterior columns of the spinal cord, and pass through the corresponding sympathetic ganglia unchanged, to be lost finally in the terminal ganglionic cells, maintaining throughout their entire course the physical characteristics of spinal nerves.

But it is only by an analysis of the symptoms of shock in their relation to the physiological action of the nervous system that we can arrive at the correct pathology. These symptoms are mainly—

1. Mental apathy. 2. Muscular weakness of the limbs, etc.
3. Lividity of skin, lips blue, finger nails blue, no waxy pallor.
4. Pupils *dilated*. 5. Perspiration. 6. Pulse almost imperceptible, unequal and very rapid; arteries small and tension low. 7. Decreased secretion of urine.

These are the main symptoms universally conceded to be characteristic of shock, and yet the article in the *International Encyclopædia of Surgery*, in which the accepted pathology of shock is very carefully discussed, says: "It may be taken as demonstrated beyond dispute that in shock there is a reflex paralysis of the heart and abdominal vessels," but admits that "there is more than this," "while the abdominal vessels are somewhat distended (sometimes) they are not enough so to account for the symptoms"; that "there is probably a paralysis of the entire vasomotor system," and concludes, as I have before quoted, that "shock is an example of reflex paralysis in the strictest and narrowest sense of the term, a *reflex inhibition*, probably in the majority of cases general, affecting all the functions of the nervous system, and not limited to the heart and vessels only."

I am obliged to admit that I can not perceive how an analysis of the symptoms, according to known physiological facts, will bear out this statement.

It would seem that the prevailing idea that shock is essentially a paresis is based upon—

1. The marked depression which undoubtedly exists in every well-marked case, especially of those portions of the system under the control of the brain and spinal cord directly.

2. The low arterial tension which exists. That there is mental apathy, muscular weakness (general), and dulled sensation is evident in every case, but it seems to me that this condition is not properly part of the pathology of shock, but rather a result or symptom merely, very like the reflex paraplegia described by Dr. Brown-Séquard. He says the paraplegic symptoms depend upon or are caused by a spinal anæmia due to tonic contraction of the arterioles supplying the part,

and that this is in turn the direct result of *irritation* of the vasomotor nerves supplying those arteries.

If we accept this pathology of reflex paraplegia, as explained by so accurate an observer as Dr. Brown-Séquard, it follows as a logical conclusion that if local acute spinal anæmia causes paresis of the nerves below that point, acute general anæmia of the entire cerebro-spinal system induced by general arterial contraction may cause general cerebro-spinal paresis.

That the entire arterial system is contracted all observers must admit, but that it can not be due to *hyperirritation* of the general vasomotor system they do not admit, because theoretically arterial tension should be high, whereas it is low. Moreover, the experiment of Goltz, of Strasbourg, seems to contradict it.

In this a frog, suspended legs downward, was struck sharply on the abdomen. The heart immediately stopped, and the abdominal vessels became intensely distended, owing to paralysis of their muscular coats.

Is it not possible that this experiment has been misinterpreted, and therefore has led to serious misapprehension? In the first place, whether the conditions (anatomical and physiological) in the frog and human being are the same I do not know, but I do know that in surgical shock, especially where induced by operations on the abdominal viscera, there is no marked increase in the distention of the abdominal vessels. This same observation has been made by others.

That a correspondingly severe blow on the epigastrium of a human being might result in conditions similar to those observed by Goltz I can conceive, but would it be surgical shock? Would it not rather be *concussion* of the solar plexus? A severe blow on the head suspends the activity of the nerve cells of the brain—concussion of the brain. A severe blow on the spine causes a more or less complete suspension of the functions of the nerve cells, etc., of the cord—concussion of the spine. The solar plexus is, like the brain and spinal cord, largely composed of nerve cells which, though they may not have the power of originating nerve force, most certainly have an important influence on its transmission and on the life of those fibers springing from them. Therefore a severe blow over the solar plexus might, and naturally would, cause suspension, more or less complete, of the power of its nerve cells, and consequently cause paralysis, more or less complete, of the nerves passing from them, with distention of the vessels supplied by those nerves. But that an *injury* to a nerve or plexus can transmit through afferent fibers an impulse of paresis



which will be reorganized at the reflex center and transmitted as a paretic impulse to the entire sympathetic system, I can not understand. I think I am right in saying that any impulse originated by *traumatism*, which is capable of being reflected, is necessarily an impulse of stimulation.

The theory advanced many years ago by Dr. Weir-Mitchell and others, that severe injury to nerves would cause an impulse of stimulation so excessive as to completely overwhelm the nerve centers, and thus cause reflex paralysis, may possibly serve to explain certain cases. I can conceive that the nerve cells from which the irritated fibers spring may be overwhelmed, but that this paretic condition can be so extensively reflected, or can involve so large an area of nerve centers as to cause the universal paretic condition, cerebral and spinal, found in all cases of severe shock, I can not believe.

But the heart was also markedly affected in Goltz' experiment. This would follow as a necessary physiological consequence of such a blow. The solar plexus receives fibers from the pneumogastric, the inhibitory nerve of the heart; some of these fibers are afferent, conveying impressions to the medulla. A blow on the epigastrium would probably cause an impulse of stimulation to the afferent fibers passing through the solar plexus, and this impulse would certainly be reflected down the pneumogastric, causing inhibition of the heart. But all this is not surgical shock, as we see it as a result of abdominal operations or crushing injuries to the extremities.

Surgical shock is essentially due to a reflex impulse which is distributed not merely to the cardiac and vasomotor nerves, but to the entire sympathetic system, as I think an analysis of the symptoms will show.

The fact that arterial tension is undoubtedly low need not be a stumbling-block to us, nor should it bear weight in favor of vasomotor paresis in the face of the combined evidence of other conditions antagonistic to it, especially as it is capable of satisfactory physiological explanation.

Let me discuss the symptoms in the order of their occurrence as nearly as may be. First occurs the injury—a crushing injury to the limbs, it may be—or a laceration or contusion of sympathetic fibers in the abdomen. Not only are the nerves beyond the point of injury strongly irritated, but an impulse of intense irritation passes along the afferent nerves to the corresponding nerve centers, and is so severe that the entire reflex centers of the cord, from which the efferent sympathetic fibers arise, are intensely stimulated, and an impulse of

extreme stimulation is transmitted to the entire vasomotor and sympathetic system.

As a consequence, the arterioles of the entire body are thrown into a condition of extreme constriction, causing a thready, almost imperceptible pulse. If the impulse were of paresis, the arteries would of necessity be dilated. No fact in physiology is better known than that paralysis of vasomotors causes dilatation of corresponding arteries. At the same time the augmentor nerves of the heart are intensely stimulated, and, as a necessary physiological consequence, the heart's action becomes very rapid and its contractions almost tetanic. It contracts strongly and relaxes imperfectly—an exaggerated systole and incomplete diastole. By reason of its imperfect relaxation it receives a scanty supply of blood and sends into the arteries at each contraction only a small percentage of the normal quantity of blood. As a consequence, the arteries are not at all distended and the blood pressure is necessarily *low*. This is not an imaginary explanation nor merely plausible, but is more than probable, as the same condition of the heart has been experimentally caused by electrical stimulation of its excitor nerves.\*

Now, having these contracted arterioles, with limited supply of blood, what conditions would necessarily follow? First, acute anæmia of the brain and spinal cord, causing partial suspension of their functions (a condition which is marked in severe cases of shock), slowness of intellectual faculties, great muscular weakness, and partial anæsthesia.

This condition, then, is not part of the pathology of shock, but rather a symptom which will pass away when the cause is removed, exactly as in the cases of reflex paraplegia so ably discussed by Dr. Brown-Séquard.

Again, the decreased or even suspended secretion of urine is a direct result of contracted renal arterioles.

It has never been demonstrated that there are any nerves which have any direct influence on the secretory function of the kidney other than its vasomotor nerves. The amount of urine secreted, therefore, depends entirely on the vascular conditions; dilatation of the renal arterioles or increased velocity of the current, causing increased secretion of urine; contracted arterioles, especially if connected with low pressure, causing decreased secretion.

Inhibition or paralysis of the abdominal vessels would cause in-

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\* Landois and Sterling. *Manual of Physiology*, p. 106.

creased blood supply to the kidney and increased secretion of urine, especially if the arteries of the rest of the system were contracted.

Again, in surgical shock we have a livid pallor (if I may so express it) of the skin, with blueness of the lips and finger nails, and coldness of the surface. This is also a direct and necessary result of general arterial contraction. The smaller arteries have the most marked muscular coat, and are therefore most severely contracted under vasomotor stimulation. This, with imperfect relaxation of the heart, throws the blood into the veins and capillaries, which become generally distended, or at least disproportionately filled.

All these symptoms, which are present in every severe case of shock, are natural and necessary consequences of general contraction of the arterioles, or general vasomotor irritation, and could not occur if the condition was one of vasomotor paresis. One of the best known of vasomotor experiments is, that section of the cervical sympathetic, with consequent paralysis of the vasomotor nerves beyond that point, causes intense arterial hyperæmia of the tissues supplied by those nerves.

But we have other symptoms not dependent on vasomotor influences, but which just as evidently are caused by excessive stimulation of the sympathetic system. In shock the pupils are *dilated*. Section of the cervical sympathetic causes paralysis of the nerves beyond the point of section and *contraction* of the pupil. Stimulation of the cervical sympathetic always causes dilatation of the pupil.

Again, in shock there is free perspiration. Special secretory nerves, non-medullated, branches of the sympathetic system, have been demonstrated as distributed to the sweat glands, stimulation of which will cause increased perspiration without reference to the vascular conditions.

If in shock there is hyperirritation of the entire sympathetic system, these secretory fibers would be irritated, and there would be increased perspiration, a condition almost invariably present.

Again, there is often relaxation of the sphincters in severe shock. This condition implies a mixed nervous action. Normally, the sphincters are largely under the control of the will, and even though there be increased peristaltic action above them, the sphincters will not be relaxed. On the other hand, even if voluntary control of the sphincters be lost, as by cerebral concussion, there will not necessarily be any evidence of their relaxation, because peristalsis may be weakened or quiescent. But in excessive stimulation of the sympathetic system there is increased activity of the muscles of the intestines,

which are directly under the control of this system (as has been conclusively proved), increased peristalsis. If, in addition to this, there is acute cerebral anæmia, with consequent impairment of volition, the voluntary control of the sphincters would be suspended, and, with increased peristalsis, there might well be involuntary evacuations.

Thus a careful, unprejudiced analysis of the prominent symptoms of shock, based on what we know to be universally accepted anatomical and physiological facts, forces me to the conclusion that there is no other correct interpretation of the phenomena of shock than that based on the theory of hyperirritation of the entire sympathetic system.

If it be true that there is a general inhibitory system, the primary factor might be general *paralysis of inhibition*, with consequent *secondary* hyperstimulation or augmentation of the entire non-medullated system, if it were not for the fact that (according to Foster) experiments tend to show that, while there is a constant tonic activity of the *vaso-constrictor* fibers, there does not appear to be any such constant action of the *vaso-dilators* (inhibitory).

I therefore can not but conclude that the *primary* and essential factor in surgical shock is hyperirritation of the entire sympathetic system.

A consideration of the treatment of shock will bring us to the same conclusion.

Clinical experience has taught us that the remedies most useful in its treatment are, of drugs, nitrite of amyl, nitroglycerin, opium, and strychnine. Of other agents, the external application of heat, the rectal injection of water as hot as can be borne, and intravenous transfusion of saline solution at the temperature of 118° or 120°.

It is beyond question that nitrite of amyl acts as a rapid but evanescent relaxant to the muscular coat of the arterioles. The flushed face and sense of cerebral "fullness" which follows a few inhalations is satisfactory evidence of this action. When, during a severe abdominal operation, shock supervenes, as shown by the rapid, thready pulse, nothing brings such speedy relief as inhalation of nitrite of amyl, but the evanescent nature of the remedy precludes any dependence on it for a prolonged effect. To those who have had occasion to use the remedy in these conditions no description of its effect is necessary. Clinical experience speaks loudly for it as a rapid dilator of contracted arterioles.

Nitroglycerin, another member of the same group, has long been known as a "heart tonic," not by reason of its special action on the

heart, but because of its relaxing effect on the arterioles, thus relieving an overburdened heart. There has never been any question as to its paralyzing action on the muscular coats of the arterioles, and it is universally conceded that it is one of the best remedies in surgical shock.

If it be true that the pathology of shock is a hyperirritation of the entire sympathetic system, we should expect contracted arterioles by reason of tonic spasm of their muscular coats; and we should also expect benefit from nitrite of amyl and nitroglycerin because of their undisputed action as relaxants of arterial spasm. The reputation of opium, while firmly established in the estimation of many surgeons as an invaluable remedy in the treatment of shock, is not so unquestioned as an arterial relaxant. And yet physiological researches have fully proved that in full doses it exerts a marked sedative action on the vasomotor system, and not only on the vasomotor, but on the entire sympathetic system.

Therefore, if the pathology of surgical shock be hyperirritation of the entire sympathetic system, it can be easily understood how opium may be an invaluable agent for its relief.

Strychnine has long been held in high esteem as a remedy of great value in the treatment of shock, many operators placing their main reliance on it. A consideration of its action, as demonstrated by physiological experiment, shows that its use is not only not incompatible with the irritant theory of shock, but is strongly confirmative of it.

Van Deen, by his experiments on animals, has shown that strychnine stimulates the motor centers of the spinal cord. Other experiments have confirmed this, so that it is undeniable that the main feature of its action is stimulation to the cerebro-spinal system of nerves, especially to the anterior columns of the spinal cord.

In toxic doses the effect is almost entirely confined (apparently) to this cerebro-spinal system. In the anatomy of the vasomotor system the nerves which act as vaso-constrictors are invariably non-medullated and arise from the cells of the sympathetic ganglia. In other words, they are purely fibers of the sympathetic nervous system. Excitation of the entire sympathetic system would therefore cause excitation of these fibers, and contraction of the muscular coats of the arteries to which they are supplied.

Accompanying each *vaso-constrictor* sympathetic nerve fiber there is always another nerve fiber which arises from the *anterior columns* of the spinal cord and passes through the sympathetic ganglia without



becoming connected with any of its nerve cells, and reaches its destination in the cells of the ganglia of the muscular coats of the arteries. It is medullated throughout its entire course, and is anatomically, in all respects, a spinal nerve. It is always *inhibitory* in its action, or vaso-dilator.

Therefore, if shock is characterized by spasm of the muscular coats of the arteries, due to excitation of the vaso-constrictor sympathetic fibers, strychnine, by reason of its peculiar affinity for the cerebro-spinal system, especially the anterior columns of the spinal cord, would disproportionately stimulate these spinal *inhibitory* fibers, paralyzing, as it were, the ganglia of the arterial muscles, and tend to antagonize or overcome arterial spasm, and in this way would be a valuable agent in the treatment of shock.

"It has been shown by the experiments of Klapp that the primary stimulation of the vasomotor centers (by moderate doses of strychnine) is followed by fall of arterial pressure and vasomotor palsy. Also that very large doses produce an immediate depression of the vasomotor centers and fall of the arterial pressure."\*

His experiments also show that not only do large doses paralyze the vasomotor center, but they slow the pulse by an immediate paralyzing action on the excitor ganglia of the heart.

Dr. Carl Heineman has also found that "large doses cause diminished frequency of the cardiac movements with diastolic pauses."

La Housse also, by his experiments on dogs, has demonstrated that sulphate of strychnia slows the action of the heart by reason of a paralyzing influence on the intracardiac ganglia—exactly the same influence that I have endeavored to show that it exerts on the ganglia of the muscular coats of the arteries. Now, according to the irritant theory of the nature of shock, there is not only arterial spasm, but there is also cardiac spasm—the heart contracting strongly and relaxing imperfectly—exaggerated systole, and incomplete diastole. If this theory be the true one, and if the deductions of La Housse and others be correct, we should expect strychnine in the large doses always used to be of great value, not only because of its stimulating action to the vaso-dilators (or paralyzing action on the terminal vasomotor ganglia), but by reason of its paralyzing action on the intracardiac ganglia, thus relieving cardiac spasm and allowing full and normal relaxation.

Strychnine, therefore, falls naturally into the group of arterial and

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\* H. C. Wood. *Therapeutics and Pharmacology*.

cardiac relaxants, and justifies its selection as one of our most valuable remedies in the treatment of shock.

An analysis of the action of the other remedies mentioned (external heat and rectal and intravenous injections of hot water) will not only bear out this hyperirritation theory of shock, but almost necessitates its recognition.

All operators admit the usefulness of heat to the surface, but say that it is used to "stimulate the circulation."

This term is vague, and in this connection means nothing. The desire is to restore warmth to the skin and bring about a condition of arterial hyperæmia. To do this, external heat must be judiciously applied. It must not be so intense as to overstimulate the ganglia in these cutaneous arterioles and cause further contraction, but must be of such degree and nature as to "invite" the blood to the surface.

Section of the cervical sympathetic causes paralysis of the vasomotor nerves beyond that point, and consequent arterial hyperæmia (intense flushing) of the corresponding side of the head. Heat applied to the surface of the body accomplishes the same purpose by sedation of the ganglia of the cutaneous arterioles, thus allowing their relaxation, which is manifested by arterial hyperæmia of the skin.

Heat applied to the surface of the body, therefore, acts as a local sedative to the cutaneous arterioles and tends to their relaxation. Whether this influence of sedation is transmitted through afferent nerves and reflected to other portions of the vasomotor system I do not know.

The action of rectal injections of water as hot as the patient can bear, and the intravenous injections of saline solution at  $118^{\circ}$  or  $120^{\circ}$ , as recommended by Dr. Dawbarn, are virtually the same, and are among the most valuable agents in the treatment of surgical shock. The action is twofold: First, there is an influence on the vasomotor nerves, and, second, fluid is supplied to the blood vessels.

In nearly all cases of surgical shock, whether consequent upon abdominal operations or due to severe crushing injuries, there is a depleted condition of the circulation—in the one case due to the anæmia consequent on a long and exhausting illness, it may be, or in the other caused by hæmorrhage consequent on the injury. In both cases it is advisable to supply fluid to the system. In urgent or aggravated cases, where the danger is imminent, intravenous transfusion of hot saline solution is a remedy of inestimable value. The action, as I have said, is twofold: First, supplying the depleted vessels with fluid, and, second, the action of the heat on the vasomotor nerves

The first indication is met equally well by both methods, more rapidly by transfusion, but equally well, though more slowly, by rectal injection.

The second indication—namely, the action of heat on the vaso-motor nerves—is met by the two methods in somewhat different ways and degrees.

Dr. Dawbarn, in advocating intravenous transfusion, stated that the saline solution should be about  $118^{\circ}$  or  $120^{\circ}$  F., as at that temperature the solution would act as a *stimulant* to the cardiac and arterial ganglia. Practically he was correct, but theoretically he was wrong.

Diluted by admixture with the blood, the temperature would be materially reduced, and a *moderate* degree of heat would be *sedative*. Fortunately, this is what we want. The hot saline solution, mingled with the blood, is brought into intimate relation with the ganglia of the cardiac and arterial muscles, and by its sedative influence on these ganglia promotes relaxation of the spasmodically contracted muscular fibers, allowing an equalization of the blood supply and relieving shock.

If the water is introduced into the system *per rectum* it should be as warm as can be borne, and introduced through the long tube. In this way not only is water supplied to the depleted vessels, but the heat is brought up to the solar plexus, or near it, and exercises a sedative influence on that important aggregation of ganglionic cells and fibers.

Thus all remedies of greatest repute in the treatment of surgical shock bring the weight of their clinical evidence to the support of the theory that surgical shock is essentially a hyperirritation of the entire sympathetic nervous system.

Let me give a hasty *résumé* of the manner in which I think surgical shock should be treated.

First, the inhalation of nitrite of amyl not only while the patient is on the operating table, but repeated at intervals until the full effect of other remedies is obtained.

Second, the hypodermic injection of nitroglycerin in doses that ordinarily would be almost toxic.

I think we often fail by not appreciating the severity of the arterial spasm that is to be overcome.

With this, if the case is not urgent, rectal injections of hot saline solution repeated as often as the bowel will tolerate it, and administered in such manner that the fluid will rapidly pass into the trans-

verse colon. If the case be urgent, the fluid must be thrown into a vein. In my opinion, no remedy is of more value than hot saline solution thus administered.

Finally, sulphate of strychnia administered hypodermically in doses regulated by the indications of each case.

All drugs should be administered hypodermically.

In all cases about to undergo a severe operation I anticipate the occurrence of shock, and in a measure attempt to prevent it by the hypodermic administration just before the anæsthetic of one or one and a half grains of codeine, and am convinced that it has a very favorable effect.

74 OTTAWA STREET.

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## STRANGULATED INGUINAL HERNIA OF A CYSTIC APPENDIX VERMIFORMIS.\*

BY WELLER VAN HOOK, A. B., M. D.,  
Professor of Surgery in the Chicago Polyclinic.

Leopold M., German by birth, forty-three years old; weight, one hundred and seventy pounds; height, five feet nine inches; newspaper dealer; had had good health (except an attack of typhoid fever at fourteen years of age) up to four years ago. At that time he had a feeling of soreness at the umbilical region, and a sudden movement, a concussion or pressure upon the abdomen, would cause intense pain. As a result of overexertion in lifting, a right oblique inguinal scrotal hernia was contracted a year and a half ago. The abdominal tenderness gradually increased up to the time I first saw him. He had never suffered from indigestion or griping pains. He has always been constipated, the bowels sometimes not moving for a week. He never noticed a tumefaction in the abdomen, but on pressure over the iliac and hypogastric regions he felt a sensation of tenderness. This soreness was not greater upon one side than upon the other. The hernia always disappeared without taxis on lying down, until September 16, 1895, when he noticed that the hernial contents remained in the sac. His own efforts to reduce it being unsuccessful, Dr. J. W. Dal was called after thirty-six hours. Dr. Dal found a tense swelling in the

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\* Read before the Chicago Gynæcological Society, December 20, 1895.

inguinal canal which he could not reduce without anæsthesia. The patient was vomiting fluids from the upper intestinal tract. No gas had passed by the rectum, but this fact may have been due to lack of sufficient peristaltic activity. Under chloroform Dr. Dal again attempted taxis, and the tumor seemed to disappear. When the patient recovered from the anæsthetic, however, pain was greater than before, and took on a different character, radiating over the lower abdomen toward the umbilicus. The doctor's observation at the evening visit convinced him that the patient's condition was not satisfactory, and a consultation was requested. On examining the patient, I found him suffering from some abdominal pain, with pulse of  $90^{\circ}$ , and a slight elevation of temperature. There was tenderness over the lower right side of the abdomen. In this region the muscles were abnormally rigid and palpation was difficult. The abdomen was but slightly distended. In the inguinal canal and extending into the scrotum was a brawny mass, not very tense. It seemed most reasonable to suppose, in the absence of clearly marked diagnostic signs, that reduction had been imperfectly accomplished, and that a thin mass of omentum was left in the sac, together with a knuckle of intestine.

After the usual preparations, the sac was exposed by a sufficient incision and carefully opened. To my surprise, no omentum or intestine was present. The brawny sensation was due to acute inflammation of an unusually thick sac. The peritoneal lining of the sac was injected and rough and the walls œdematous. In the sac, lying in scattered masses here and there, was a quantity of translucent amber-colored mucus having almost exactly the appearance of calf's-foot jelly broken up into pieces of one to ten millimetres' thickness. Its consistence, however, was somewhat tenacious. Having seen on another occasion the same material in a cyst of the vermiform appendix, I recognized at once that such a cyst had been strangulated in the inguinal canal and ruptured in reduction.

The incision was prolonged sufficiently to open the abdominal cavity, where an additional quantity of mucus was found scattered over the intestines and the parietal peritonæum of the internal iliac fossa sufficient to make the whole amount equal to at least an ounce. The caput coli was near at hand, and on drawing it into the wound the cystic appendix was drawn into the wound. At the distal extremity of the appendix was found a rent as large as a lead pencil, through which mucus was protruding. The walls of the appendix were dilated at the middle, but near the cæcum was a constriction. The caput coli and neighboring small intestines were covered with



thick tenacious masses of false membrane, quantities of which were stripped off. There was but a small amount of fluid present. The peritonæum, where not covered with false membrane, was deeply injected and roughened. That these changes involved an extensive area of the serous membrane was proved by cautiously drawing out the neighboring coils of bowel.

The sac of the hernia was first dissected free and cut off at the cœliotomy wound, a number of iodoform-gauze capillary drains were applied carefully in different directions in the abdomen, and the caput coli drawn well up to the wound. The appendix was then ligated close to its base and amputated with scissors. The suture used to ligate the appendix was left long enough to be passed through the eye of a needle, and was then carried through the muscular walls of the abdomen. In this way the cæcum, whose walls were more violently inflamed than those of other parts of the intestines, was anchored close to the abdominal wound. The cœliotomy opening was, for the most part, left open to facilitate drainage, although a few silkworm-gut stitches were inserted, to be tightened as secondary sutures. The patient bore the operation well, and, despite the grave local infection, made uninterrupted progress toward recovery. During the first few days an enormous serous discharge escaped from the opening, and the temperature went up to  $101.2^{\circ}$ . The pain disappeared, however, and, the bowels responding to laxatives, the general condition of the patient rapidly improved, the wound healed by granulation, and the man now, three months after the operation, attends to his usual business, wearing a truss to protect the abdominal walls.

The portion of the appendix removed is, in its recent condition, six centimetres in length and two centimetres and a half in diameter. Its outer (peritoneal) surface is of a bright-red color except at points not covered by a grayish-red false membrane. Here and there are small masses of an amber-colored, thick, tenacious substance which finds its way out of the appendix, on pressing its walls, through the cut end and through an irregular opening at the distal extremity about eight millimetres in diameter. The shape of the appendix is irregularly cylindrical; but about two centimetres from the distal extremity the tube is bent upon itself from the longitudinal axis in the direction of the mesenterium at an angle of about  $40^{\circ}$ . The walls of the appendix vary in thickness from about four millimetres at the point of amputation to nine or ten millimetres near the distal extremity. There are also variations in the thickness of the walls at the same level, giving rise to slight pouchings of the lining membrane at several

points. But these pockets do not at any point reach the dignity of diverticula. The interior of the appendix is filled with the same gelatinous, amber-colored material already noted as having been seen adherent to the peritoneal surface of the process.

Microscopically, the fibrous coats of the appendix are greatly thickened. The muscular layers are not thicker than normal. Out of thirty sections examined, only one shows a small, ill-developed layer of epithelial cells representing the atrophic mucous membrane, the place of which elsewhere is filled entirely by a layer of connective tissue.

This case is unique in the occurrence of rupture of the cystic appendix in the sac of a hernia; it is the third case of which I have knowledge, after a study of the accessible literature, where a cystic dilatation of the appendix occurred in a hernia, and the ninety-ninth case of hernia of the appendix. It is also interesting from the fact that inflammation of a hernial sac had its origin in a lesion of the appendix.

Rupture of the cystic appendix by taxis in the effort to reduce an inguinal hernia is an accident which, as has been already remarked, has not before been recorded. And even if one were aware of such a possibility no practical advantage of the knowledge could be taken, both on account of the rarity of the circumstance and the want of diagnostic signs to lead us to a proper knowledge of the conditions before operating. The practical lesson to be gained from an acquaintance with this case is that the contents of a hernia are practically unknowable before the sac is opened, and that taxis is dangerous in a certain proportion of cases. But little persuasion is needed to convince surgeons to-day that the open method is, in the great majority of instances, the simplest, most radical, and satisfactory treatment for strangulated and incarcerated hernias.

Cystic enlargement of the vermiform appendix seems first to have been noted by Virchow, who had observed a case in which the appendix was distended to the size of a man's fist, and as the contents were a thin watery fluid, he called the condition "hydrops of the vermiform appendix."

Rokitansky, in his *Text-book of Pathological Anatomy*, said: "We further occasionally observe a metamorphosis of the vermicular process produced by obturation, which is analogous to dropsy of the efferent ducts of glands, and which is most apparent in the gall bladder (hydrops cystidis felleæ)."

Glasmacher's case was that of a soldier who presented himself with a tumor the size of a pigeon's egg in the right inguinal canal near the

abdominal ring. For a year there was no trouble. Suddenly obstruction occurred, and on making a herniotomy a cyst holding a drachm of pus was found. This cyst contained no faeces or gas. A pedicle extended into the abdominal cavity. The patient died with continued symptoms of obstruction. At the autopsy intestinal gangrene was found. The cyst was proved to have been the appendix. It does not seem to have been a true retention cyst.

Zdekauer's case was that of a woman, eighteen years of age, who had a recent right inguinal incarcerated hernia the contents of which were diagnosticated as an ovary. On exposing the mass it was found to be a vermiform appendix dilated to the size of an acorn and filled with pus. This case, like that of Glasmacher, I can not regard as a retention cyst on the evidence of the recorded histories, although Bajardi classifies them in that category. The condition was simply that of pus retention within the imprisoned appendix.

Wölfler's case was operated upon by Billroth for hernia. No intestine was found, but a cyst, thought at first to be the sac, was opened, allowing a teacupful of serous fluid to escape. The herniated cyst was found to communicate with a larger cystic cavity within the abdomen, extending from the psoas muscle to the small pelvis. Pressure on the abdomen caused a bloody fluid to escape. It was thought the symptoms of strangulation had been brought about by the tense-ness of the cyst. In spite of free drainage, the patient did not do well until the lining membrane of the cyst, after several days, had sloughed and been removed with forceps. The thickness of the cyst wall was between three and seven millimetres.

Steiner describes four specimens in the pathological museum of Basle, giving chief attention to minute anatomy :

CASE I was from the body of a woman, thirty years of age, who died of puerperal fever. The contents of the cyst were homogeneous gelatinous masses. No communication existed between the cyst and the cæcum. The form of the cyst was elongated, biscuitlike, two dilated parts communicating by a narrow isthmus. The entire length of the appendix was 5.5 centimetres. The thickness of the wall varied between one and 2.5 millimetres. The inner surface of the cyst showed a shining smooth membrane with striated markings. No trace of epithelium or Lieberkuehn's glands. Even the muscularis mucosæ and the follicles had disappeared. The wall of the cyst consisted of three layers, an inner connective tissue layer, and a layer of loose cellular tissue, uniting the first layer with the well-developed muscular layer, consisting chiefly of circular fibres.

CASE II.—The appendix was 8.8 centimetres long. The cystic dilatation had a longitudinal extent of 5.8 centimetres, with a transverse diameter of 1.8 centimetres.

CASE III was also that of a small cyst. The mucous membrane was not wholly destroyed.

CASE IV occurred in the person of a woman fifty-five years old. The cyst was small and the muscularis mucosæ, together with some epithelium, was retained *in situ*.

Steiner states that in 2,280 protocols of autopsies made in Basle, only three cysts were found. In the cases with moderate dilatation a distinct hypertrophy was found in the circular fibers of the muscular layer, while in the larger cysts, with marked stretching of the wall, the musculature was not thickened. Steiner, like other observers, noted the occurrence of diverticula in the walls of the cysts. His discussion of the microscopical relations of the walls of the cysts is interesting, but too long to be quoted.

Shoemaker published an account of a case in which a cystic dilatation of the appendix was discovered post mortem, no symptoms having been noted during life.

The six post-mortem specimens of Ribbert had fortunately such varying characteristics that he was able to formulate the changes which take place in the appendix when cystic dilatation occurs. He says :

“In the lesser degrees (of dilatation) we see no essential alteration in the composition of the wall. Later, abnormalities of the epithelium occur. It is lost, together with the glands, throughout considerable areas, and forms in other parts a covering of a single layer without glands, which, however, may still be present in patches. In very great dilatation it is destroyed altogether, but, as Case VI shows, disappears even when dilatation is slight. We must, however, take into consideration that the loss of epithelium does not need to be the result of dilatation, but that it may be destroyed by the diseased process which led to the cicatrization producing the obliteration of the lumen. The follicles disappear equally soon, and finally are altogether wanting.”

Ribbert says that an obliteration interrupting the lumen of the tube does not necessarily lead to a cystic dilatation, although the glands may be retained. Bischoff thinks that a dilatation is wanting when the mucous membrane is still able to resorb in the normal way. Ribbert thinks a dilatation is also wanting when, as a result of early and extensive destruction of the mucous membrane, no secretion into the lumen can longer occur.

Finkelstein describes a specimen in Sonnenburg's collection in which the appendix was dilated to a length of fourteen centimetres and a circumference of twenty-one centimetres. The pear-shaped appendix appeared like a pedunculated tumor.

In the case reported by Wenzel-Gruber was a cyst six centimetres long attached to the cæcum by a pedicle four centimetres long. The cyst had a transverse diameter of four centimetres and a half, and was filled with viscid mucus. This case was remarkable for the fact that the obliteration of the lumen was brought about by a chronic tubercular catarrh.

Kelynack relates a case of a middle-aged female who died from extensive vegetative endocarditis, in which the appendix was found to

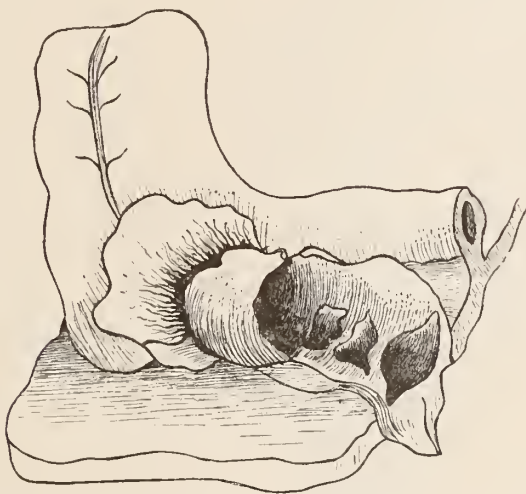


FIG. 1.—Kelynack's case of cystic dilatation of the appendix. "The cystic organ has been laid open in its greater part. A portion of the anterior wall of the cæcum has been removed in order to show the proximal occluded end of the appendix bulging into it."

be completely shut off from the cæcum, and no sign or indication of any previous communication could be observed. The appendix was greatly distended and presented two very distinct diverticular processes, which were directed between the folds of the mesentery of the appendix. The diverticula were connected with the dilated cavity of the appendix through well-defined circular openings. The appendix contained a thick, gelatinous, light-yellow substance, and also a small quantity of material like curdled milk in appearance.



J. A. Berry refers to a case of Féré described as a mucocele of the appendix, and Berry himself describes a case in which (as in Shoemaker's case) the appendix was found post mortem distended with thick gelatinous mucus.

Orth and Leube give descriptions corresponding with the older accounts of Virchow and Rokitansky.

Bierhoff gives a report of three cases of this condition.

Foerster is cited by Woelfler as having had a case.

Kelynack, in addition to his own case, refers to reports by Fenwick and Coats. The latter states that in his case the appendix had been converted into a large cyst, measuring five inches in its long diameter. The cyst contained a tenacious colored material, and the wall was thick and firm. In Fenwick's case "the appendix was distended by a milky fluid, the communication with the cæcum being obliterated."

In February, 1895, I witnessed an operation by Mr. Frederick Treves at the London Hospital in which the appendix was enlarged cylindrically, its length appearing to be about four inches and a half and its diameter one inch. What symptoms had occurred to indicate an operation were not stated. The appendix was amputated after the formation of cufflike flaps which were united over the stump. The cyst contained a thick gelatinous mucus. Mr. Treves stated that a specimen almost exactly similar to the one removed was deposited in the Cambridge Museum. Mr. Treves' case is the only one operated on for symptoms arising in a cyst not involved in a hernia. A record of the symptoms produced would be of great interest.

A most interesting case is that of Maylard, who found at a post mortem upon a patient dying of Bright's disease a dilated appendix measuring four inches in length and two inches in thickness. The dilated part was filled with a clear gelatinous substance which could be turned out *en masse*. At the proximal end it communicated freely with the cæcum. Perhaps we would be less surprised at the presence of so much mucus if we remembered that it is not uncommon to find a viscid plug of mucus in the normal appendix. And as Maylard's case seems well authenticated, we must assume that absolute obstruction is not wholly necessary to the accumulation of thick mucus. It must be otherwise when the fluid is limpid, as in Virchow's and Rokitansky's hydropic form. As in my case the base of the appendix was ligated before being removed, no attempt was made to determine the permeability of the proximal part of the process, but the occurrence of active plastic peritonitis strongly indicates the partial patency of

the tube, permitting the exit of micro-organisms from the cæcum. The contents of such cysts containing thick mucus can not therefore be regarded as sterile without further investigation. It would seem probable that micro-organisms were absent from the cysts whose contents are limpid. In the case of the cysts whose contents are viscid and gelatinous, the stiff and unyielding character of the material accounts for its failure to be expelled through the contracted opening, while the more fluid secretions could easily escape.

Prof. Ludwig Hektoen has kindly placed at my disposal a specimen of cystic dilatation of the appendix removed from the body of a woman who had died from nephritis. The appendix is about seven centimetres in length and, as can be seen from the photograph (Fig. 2), is normal in size and conformation in its lower half. A cystic dilatation enlarges the circumference of its upper half. In order that the value of the specimen as a gross exhibit need not be impaired, no incision was made.

The total number of cases observed is, therefore, so far as I can discover, thirty-two, including the cases of Treves, Hektoen, and myself. This number indicates the rarity of the disease. Yet I can not help thinking that the innocent character of the lesion has prevented many observers from reporting cases.

The symptoms produced by cysts of the appendix are very slight, if present at all. In my case there were tenderness and sharp pain on jarring the body for four years prior to the strangulation of the hernia; but the significance of these symptoms can not as yet be determined.

In the absence of characteristic determinative signs the lesion can not be diagnosticated. It will be as much as we can do, as Senn says,



FIG. 2.—Professor L. Hektoen's specimen of cystic dilatation of the vermiform appendix.

to bear this condition in mind when we have to deal with cysts in the region of the appendix. And my own case would cause us to bear in mind the possibility of cystic dilatation when the patient is long afflicted with vague right iliac tenderness aroused into sharp pain by concussion or pressure.

*Hernia of the vermiform appendix*, uncomplicated by the presence of other visceral parts, is an unusual occurrence. Klein, Brieger, Bajardi, and others have collected cases to the number of ninety-eight, to which I may add my own.

Hernias of the vermiform appendix are internal (with which we are not at present concerned) and external. Of the latter, Bajardi found fifty-seven inguinal, forty crural, and one obturator. Considering the relative infrequency of crural hernias, the proportion in this collection seems so great that special causes would seem to operate in its favor. Two circumstances, it seems to me, may be adduced in explanation: First, the small femoral opening might admit an appendix, when a coil of intestine might not enter; and, secondly, in inguinal hernias the greater distensibility of the rings would, as a rule, permit the entrance of other parts of the gastro-intestinal tube.

It is not surprising, in view of the frequency of crural hernias, to find that among eighty-nine cases in which the age was mentioned, thirty-eight were females. The age of the patients is very interesting. In the successive decennia there were respectively fifteen, five, six, five, fourteen, twenty, eleven, three, and one. Of these eighty cases in which the age was mentioned it will be seen that forty-nine cases occurred after the age of forty, and thirty-five cases after the age of fifty years. The explanation, I think, lies in the fact that the lapse of time favors the agencies which bring about descent of the cæcum by elongating the mesocæcum, or relaxing the retrocæcal connective tissue. It is to be noted, at the same time, that twenty-one cases were congenital hernias which were all inguinal ruptures of the right side. Only four of these hernias were free, the remainder being strangulated, inflamed, complicated, or rendered irreducible by incarceration or by adhesions, as occurred in sixteen cases, fixing the appendix to the testis, the spermatic cord, or the wall of the sac. Of the recorded cases, as collected by Bajardi, forty-seven were strangulated. In seventeen of these the appendix was free of adhesions, and ten times it was so little altered that it could be reduced with facility. Eight times the appendix was gangrenous, and three times the constricting band had produced an ulceration. In one case the appen-

dix was reduced without relieving the constriction, the patient dying five hours later.

The clinical phenomena of strangulated appendical hernia are very variable, and have been analyzed by Bajardi for the ninety-eight cases he collected.

The symptoms of antiperistalsis were present in many cases, continuous vomiting occurring fourteen times. Nausea or efforts at vomiting occurred in five cases. Constipation was absolute in sixteen cases, incomplete in five cases, and wanting in eight instances.

The causes of the symptoms of incarceration are difficult to learn. In Glasmacher's case an acute flexion caused the phenomena, and actual mechanical obstruction doubtless occurs sometimes. A few cases may be explained by Klein's supposition that the obstruction is a dynamic one, due to the reflex involvement of the motor nerves of the intestinal musculature.

Brieger refers in this connection to the experiments of Kirstein, who found that ileus is not produced by the mere sudden occlusion of the intestinal lumen, since the dogs in which intestinal occlusion was brought about by suture died after a rather long time from hunger, while the stormy symptoms which arise soon after the occurrence of incarceration develop as a result of the maltreatment of the strangulated intestine and its nerves. The violent symptoms brought about by the strangulation of omental hernias are also to be borne in mind.

The mechanical conditions upon which hernias of the appendix depend are an abnormally situated cæcum, an unusually lax retro-cæcal connective tissue, an exceptionally elongated cæcum, or an excessively lengthy appendix. In the recorded cases the appendix is not said to be extremely long. It would seem that usually the appendix has been able to reach the hernial canal by a postnatal slipping-down process on the part of the cæcum which, in the case of hernias of the cæcum, Hildebrand, who has studied eighty cases of hernia of the cæcum, thinks is the rule. But the occurrence of twenty-one congenital hernias among Bajardi's ninety-eight would lend color to the explanation of Brieger, who states that in foetal life the vermiform process maintains a bandlike connection with the testis, or is immediately adherent to it, so that when the testis descends the appendix is drawn with it. The natural query is, Why does not congenital hernia of the appendix occur oftener if this is correct?

Another ætiological factor suggested by Brieger is the patency of the processus vaginalis. Of course the appendix could easily descend into it upon the occurrence of exciting causes.

Obviously the only explanation of a left-sided inguinal or femoral hernia of the appendix must lie in the abnormal situation of the caput coli, either alone or as part of a general abnormal situation of viscera. As a matter of fact, no case of situs inversus viscerum has yet been observed where the appendix was in a left-sided hernia. The necessary malposition of the cæcum is not unusual.

Inflammation of a herniated appendix is prone to occur, as evidenced by Bajardi's thirty cases. The peculiar situation doubtless favors the occurrence of infection, but the presence of foreign bodies in eleven cases accounts for the phenomenon in these instances. Perforation took place in sixteen cases, nine times at the end of the appendix. The appendix was gangrenous in four instances. Diffuse peritonitis occurred seven times as a result of perforation.

The symptoms of hernial appendicitis are those of acute inflammation of greater or less violence in a hernial sac. And if strangulation is added, the symptoms of ileus still further confuse the picture. The diagnosis is very difficult in both strangulation and inflammation of herniated appendices. In forty-seven cases of strangulated hernias of the appendix the diagnosis was, according to Bajardi, only twice made before operation. In Löbker's case Hueter made the diagnosis of probable incarcerated hernia of the appendix on account of the existence of phenomena very similar to those observed in two other cases which he had already seen. In Jackle's case Roser had admitted the possibility of hernia of the appendix on account of absence of vomiting in the presence of intense local symptoms.

Bajardi's comment, that diagnosis of those conditions will be almost always impossible, would seem to be justified when we remember that the symptoms are often so violent as to simulate closely a strangulated hernia of small intestine. In one case a diagnosis of inflamed appendicular hernia was reported by Jackle. A child that had been cured in the clinic of a suppurating inguinal hernia returned presenting a solid cord within the scrotum. The accurate observations previously made rendered the diagnosis easier.

The mistakes made in diagnosis have been varied and sometimes very misleading. The inflamed mass has been at different times considered a peri-orchitis, an orchitis, and an inguinal adenitis, while in one instance the surgeon was in doubt as to the existence of psoriasis or coxitis. In the case of Gibney the symptoms closely simulated those of a coxitis.



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## EDITORIAL.

### ANNOUNCEMENT.

Our readers will learn with pleasure that we inaugurate with this issue a series of original articles by a number of the most celebrated foreign surgeons in the specialties of gynæcology and obstetrics.

These articles will appear at varying intervals as the leading articles of the month. They will be written especially for this JOURNAL, for the most part in the native language of the author, and published by us in a literal though idiomatic English translation. When the author so desires, the original text will appear accompanied by its English equivalent. Only those acknowledgedly representing the medical thought of the several countries to which they owe allegiance will take part in this series and, so far as may be, each paper will discuss that subject, whether original procedure or technique in operating, with which the name and reputation of the writer are especially associated.

Our purpose in this undertaking is threefold :

1. To bring directly home to all our American readers, in their own language, the good work of the most celebrated specialists of Europe, that we may thereby learn, *at first hand*, what has been accomplished by others acting independently from ourselves and may profit by this knowledge.

2. That our foreign brethren, a greater *mutual* interest being excited, may come to study a little more the distinctively American

work which has been done in this country and will again, we trust, be done in the future. The foreign mind may thus be disabused of the belief which we fear obtains—and not without excuse—that American gynæcologists of the present decade are but shadows cast in reflected light from Germany and France.

3. By placing the work of foreign specialists in direct comparison with that of our own countrymen, we may see for ourselves and not through the partial eyes of would-be imitators of foreign models, wherein we fall short and wherein we ourselves excel. For we must not forget, if Europe (taking us at what apparently is our own valuation) has so forgotten, that we have quite as much to teach our foreign brethren as they have to teach us. We refuse to believe that the spirit of original thought and investigation in gynæcology is not at least still latent among us.

We hope, therefore, for great results from the series of foreign authors in this JOURNAL, not only in its direct effects but in far broader measure from the example which we hope may be followed in time by our contemporaries both in America and in Europe. It will mean a great advance in our specialty when distance, nationality and a foreign tongue shall no longer debar a man, whom most of us now honor on hearsay evidence only, from addressing himself *directly* to medical readers everywhere throughout the world.

We dare to prophesy that it will not be long before subscribers to medical journals will refuse to be satisfied with "Abstracts from Foreign Sources" and will demand to read for themselves, in literal though idiomatic translation, the very words of any man, whether Scandinavian or Italian, American or Russian, who has a message worthy of special record.

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## CORRESPONDENCE.

### THE ANATOMY OF THE ENDOMETRIUM.

100 STATE STREET, CHICAGO, ILL., *January, 1896.*

*To the Editor of The American Gynæcological and Obstetrical Journal :*

SIR : I have read with much interest the paper of Dr. William R. Pryor on The Anatomy of the Endometrium and the Technique of its Removal by Curettage.

This paper was read before the New York Obstetrical Society and was published in your January number (1896). I am surprised that the part of this paper which relates to curettage and contains nothing new should have called forth so much discussion, while that part which relates to the anatomy, being to a great extent new, should have called forth no discussion at all beyond some expressions of gratitude for the "concise and instructive account of the latest views of the anatomy of the uterine mucosa."

I desire in a few words to raise some questions relative to the allegations in this paper, especially those which relate to the anatomy and physiology of the endometrium. The technique as described is in the main identical with that of other gynæcologists; at least, it does not differ so materially as to warrant the expectation of widely differing clinical results.

Had the anatomical and physiological descriptions received their full share in the discussion it is possible that something more definite and tangible than the oracular and enigmatical aphorisms of the paper might have been brought out. We are told of a certain "activity in the absorptives which follows the removal of the uterus"; of "the action of thyroid extract upon the absorptives—directly the reverse of that brought about by the removal of the mass of lymphoid uterus, the effect of hysterectomy upon the progress of phthisis pulmonalis." We are told of "the synchronous development of the thyroid and lymphoid endometrium" as a reason to "class the endometrium among the lymphoid organs."

It would be interesting and new to science to have some information on the nature of this activity of the absorptives which follows the removal of the uterus; on the nature of the action of the thyroid extract on the absorptives and its direct converse, "brought about by the removal of the mass of lymphoid uterus." The scientific world also would be glad to know something more of the effect of hysterectomy on phthisis pulmonalis. The development of the testicles is also synchronous with that of the thyroid gland; would this be sufficient ground for concluding that the testicle is a lymphoid organ?

Perhaps it would be more judicial to direct this communication less to a criticism of the suppositions and hypotheses and more to a consideration of the positive statements of Dr. Pryor's paper.

We are told that the uterus is guarded by a sphincter muscle; that this sphincter muscle is the cervix; that it is "always present in those animals whose uteri are vertical." Then follows the announcement: "Its anatomy will not be further considered." Perhaps it

would have been more to the point to have considered it further or not to have considered it at all. Let me remark in passing that the uterus in man, unless displaced, is not vertical, and that a sphincteric cervix is found in many animals whose uteri are not vertical.

The alleged minute granules in the endometrium have also puzzled other microscopists. The pathologists are waiting for some proof, not to say evidence, of the gradations said to take place in the development of these minute granules into lymphoid cells and granular nucleated corpuscles. It would be interesting, however, to call them "lymphoid cells" upon some evidence and not because they "closely resemble white blood-corpuscles." Does the assumption that connective-tissue cells are lymphoid cells make them so? Does the fact that the endometrium is abundantly supplied with lymph spaces and lymph vessels make it a lymphoid organ? All organs are supplied with lymph spaces and lymphoid cells—some more, some less. To what degree is this supply necessary before it would furnish a basis for designating the organ as lymphoid? Some other organs are as abundantly supplied as the uterus, but they are not called lymphoid.

We are not only told that the endometrium is a lymphoid organ, but we are told that it is "not a mucous membrane." The denial that it is a mucous membrane is apparently based upon the author's assumption that the endometrium has no glands. In place of the word "glands" he uses the words "crypts" and "follicles." Would he call the same structures when they appear in the intestine "glands," or "crypts," or "follicles"? These endometrial structures, when observed through the microscope and when considered in their physiological relations, are regarded as glands by every other recognized authority in the civilized world.

It is not correct, as declared by the author, that the lymphatic channels "unite to pass between the layers of the broad ligament." They pass without uniting. The statement that "below the os internum they extend beneath the broad ligaments and end in lymphatic glands over the obturator foramina" needs revision. The following statement—that "the capillaries penetrate as far as the epithelial layer on the surface"—was probably not intended to be regarded as new or extraordinary.

The description of the uterus during menstruation contains some astonishing statements. One is struck with the literary facility with which "new capillaries are formed" and "the epithelium melts off." The theory of the production of new epithelium from "embryonic lymphoid cells" is so beautiful and simple that it is a pity it is not



true. Observe the wonderful transition from the embryonic lymphoid cells to "cuboidal, to cylindrical, to ciliated cylindrical, epithelium." Let us venture to hope that science will soon be favored with a more detailed description of the methods of investigation which were employed in making these remarkable discoveries. Is it possible that the change of connective-tissue cells belonging to the mesoblast to epithelial cells which belong to the endoblast can be explained without reconstructing all of our ideas on cell development? Hitherto such a transition has been regarded as impossible.

The earlier work of Bossi which the doctor cites is, I suppose, the one published in 1891-'92. This work contains no trace of any indorsement of the author's views.

The statement that "the union of a number of lymphoid cells" is destined "to form a decidual cell" is so extraordinary that it is not difficult to consider it a misprint.

The physiology of this paper is not only speculative but rests upon an anatomical basis yet to be proved. The question, therefore, "whether we shall place the endometrium among those lymphoid organs which are engaged in the formation of blood or those more nearly allied to the absorptive system" is not answered. The question, however, since it relates to incorrect assumptions, is irrelevant. The subject is not rendered more luminous by the mere mention of "the observation of His upon the parablasic tissues." These observations were made on the embryo, and furnish no basis for conclusions relative to the physiology of the adult endometrium.

The absence of any statement to the contrary leads us to infer that the author has himself worked out and developed these theories. In this field he has at least two predecessors in the United States, neither one of whom has succeeded in establishing the same theories.

The author concludes the anatomical part of his paper as follows: "Upon the facts as I present them to you is based my method of curettage."

This is the most astonishing statement of the entire essay. He bases his method of curettage and the use of his "form of iodoform gauze" upon his anatomy and physiology of the endometrium. Permit me to remark that pathological more than physiological conditions furnish a basis for treatment. Pathology in this paper is conspicuous by its absence. I fail to grasp the relation which this paper implies between ideas on the anatomy and physiology of the endometrium and its removal by curettage.

The author has begged his audience to be "as critically disposed

as they may." I refrain, however, from criticism in the hope that the author will give some substantial evidence of the accuracy of his statements.

EMIL RIES, M. D.

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TRANSACTIONS OF THE NEW YORK OBSTETRICAL  
SOCIETY.

Stated Meeting, December 17, 1895.

The *President*, HENRY C. COE, M. D., in the Chair.

*Symphysiotomy.*

Dr. A. B. TUCKER presented a patient, forty years of age, who had had four live children and six stillborn. The live children had been born first. She had consulted him for the last pregnancy, and he had delivered her by symphysiotomy. He had made a slit just below the clitoris, and had entered a blunt-pointed bistoury up to the upper surface of pubic bone. He had then slid the edge of the knife along until it struck the symphysis of the bones, when it had been easy to cut through the joint and subpubic ligament. There was very little bleeding, and this was readily controlled by pressure. Dr. Ayres had previously spent nearly an hour in trying to deliver the child by forceps. He believed that in these cases, as in Cæsarean section, it was always better to operate before attempting to deliver by instruments or podalic version. The operation was done in February; the child died.

Dr. Tucker also presented another patient operated upon by this same method, which had been devised by Dr. E. A. Ayres. The operation had been done in a tenement house, yet there had been no rise of temperature. She had had no bladder trouble, but had complained of pain in the right side and of difficulty in going downstairs. The operation was done in October with a living child.

*Operation for Strangulated Hernia; Bladder in Hernial Sac.*

Dr. A. PALMER DUDLEY presented a specimen from a case of strangulated inguinal hernia. The patient was an old man, seventy-six years of age, who had been operated upon at the Harlem Hospital last week. The patient had been brought into the hospital in an ambulance with symptoms of obstruction. It had not been deemed advisable to allow him to remain long without operative interference.

Several competent physicians had endeavored to reduce the strangulation before his admission to the hospital. So far as could be ascertained, the patient had been perfectly well up to three days before coming to the hospital. He had lost no time, therefore, in cutting down upon the sac and opening the canal thoroughly. He had then examined carefully for intestine, and finding no evidence of such contents, he had transfixed the tumor and removed it. He had then discovered mucous membrane, and, supposing that the intestine had been cut open, he had made preparations for a resection of the bowel with Murphy's button. After removing the ligature from the omentum he had examined further, and had found that there was no small intestine, but, on the contrary, that he had to deal with a case of strangulated inguinal hernia, including the right horn of the bladder. The specimen he considered to be a rare one, as the contents of the hernia was only omentum and a portion of the bladder. The remainder of the operation consisted in carrying out the usual steps of a hernia operation, taking the precaution, however, to leave a catheter in the bladder for twenty-four hours. The patient was now convalescing very satisfactorily.

#### DISCUSSION.

The PRESIDENT remarked that Dr. B. F. Curtis had written a paper and reported three cases of injury of the bladder during operations for strangulated inguinal hernia. If he remembered correctly, Dr. Curtis had attributed this to a diverticulum of the bladder.

#### *Symphiseotomy.*

Dr. J. CLIFTON EDGAR presented a case of symphiseotomy selected to show the bad results of the operation. The patient had been pregnant for the fourth time. Her first labor was in August, 1891, and was terminated by craniotomy; the second labor was in 1892, and was terminated by forceps; the third was terminated by version and the delivery of a mutilated child. The last confinement had occurred in September, 1894. She was in labor eight hours. She had a pelvis flattened from side to side and a true conjugate of fully four inches. It was for the lateral deformity that the operation had been performed. On September 24th the ordinary operation had been performed, but the wound had become septic probably from the sutures. The wound had been opened and dressed as an open wound. She had had necrosis of both surfaces of the horizontal rami of the pubes. These had been scraped and had finally filled up

with fibrous tissue. At the present time there was good union, and the patient was again in the third or fourth month of pregnancy. It should be said that there was a direct history of syphilis, and that she gained rapidly in weight, and the healing process had been remarkably hastened under antisyphilitic treatment.

#### DISCUSSION.

Dr. E. A. TUCKER asked if the first case presented by Dr. A. B. Tucker had been seen for the first time by him when in labor.

Dr. A. B. TUCKER replied that craniotomy had been performed on two previous occasions, and he had had the patient under examination for several months. Dr. Ayres had taken measurements, and these had indicated that a living child could not be delivered without such operative interference. The second case had not been seen previous to labor and the head would not engage.

Dr. E. A. TUCKER said it was worthy of note that as the patient had become stouter the labors had become harder. He had noticed that women with a good thick ring of fat in the pelvis were very difficult to deliver. He could not see how the symphyseotomy was justified in the first case; it would have been much better to have induced premature labor. She had borne several full-term children, and consequently there would have been an excellent probability of success from the induction of labor at eight or eight and a half months. He had been impressed with the fact that many physicians refrained from inducing premature labor at this period, waiting until full term and then resorting to operation. He had recently seen two such cases. One of these patients had gone to full term, or beyond, and the final outcome had been craniotomy, version, and horrible mutilation of the mother. Within the last two months this patient had been safely delivered by him of an eight-pound baby at the eighth month. Her physician had recommended in this case that symphyseotomy be done. In the other case which he had in mind there had been one child delivered and mutilated with forceps, and the next child mutilated in attempts at delivery with instruments. He had seen the woman when she was six months pregnant, and had expressed the opinion that by the induction of premature labor a live child could be delivered. He had kept her under observation and had induced labor at eight months and a half, and a child of seven pounds and a half had been delivered without special difficulty. It was the physician's duty, he felt, to induce premature labor in these cases.

Dr. MALCOLM McLEAN reported that in the first case shown he

had found the usual sliding motion at the symphysis when the patient's weight was tipped first on one foot and then on the other. The antero-posterior sliding was less than in most of the cases he had seen. He had never yet seen a case in which this motion had not existed.

Dr. E. A. AYRES, present by invitation, was requested by the President to describe the technique of the operation he had originated. He said that his method seemed to him to greatly simplify the operation of symphyseotomy and lessen its dangers. He first operated by this method in the middle of December, 1893, on a patient who had a conjugate of three inches and a third. She had had two confinements, in one of which a craniotomy had been performed and in the other there had been a premature delivery. When first seen by him the child had been in an anterior transverse position, and the mother in labor. The operation consisted in making an initial incision half an inch above the meatus, practically at the base of the pubic arch. The incision was only about one fourth of an inch wide—large enough to admit a probe-pointed bistoury. This bistoury was then pushed up to the top of the symphysis, while the urethra was held to one side by a male urethral sound. The bistoury was then brought against the tip of the index finger of the other hand and brought in contact with the symphysis posteriorly by pressure against the anterior vaginal wall. The left finger gave an excellent guide to the position of the joint, and at the same time the right finger was close to the point where the cutting was done. The joint in front being V-shaped, it was easier of access from the front. In making the cut, but little up-and-down motion should be made, as it is desired to keep the knife close to the guiding finger. A slight lateral motion is made as the knife passes through the joint. As it passes down, the index finger of the left hand is passed down with it, hence there is no danger of injuring the urethra or bladder, or cutting posteriorly. He had used a probe-pointed bistoury in these operations, but he felt that the probe point was not at all necessary, as the knife was carefully guided by the index finger. The hæmorrhage attending this method was certainly very slight—not more than from two to four ounces having been lost in any of these operations. There was no occasion to cut sufficiently low down to enter the bulbous tissue below the symphysis, and in fact in the field of operation there were no vessels of importance. The hæmorrhage was readily controlled by slight pressure. In his cases he had lightly packed the wound, after bringing the pubic bones together, with iodoform gauze, and had not sutured the wound



in any case. He had heard recently from the first patient, and she was in excellent condition.

In the second case reported by Dr. Tucker the conjugata vera was three and one eighth inches, and he did not believe she could have been delivered of a living child at eight months without operation. A few days ago, in the presence of Dr. Coe, Dr. Edgar, and others, he had operated upon a patient having a true conjugate of four inches. The pubic arch was very narrow, and while the head showed a tendency to enter the inlet it exhibited no disposition whatever to descend. The pelvis was infantile and funnel-shaped, causing a very narrow transverse diameter. After having been in labor eleven hours, she was operated upon on December 13th, and the child delivered by forceps. This being a twin pregnancy, the second child was then delivered by forceps. The first child weighed six pounds six ounces, and the second seven pounds four ounces. He had carefully measured both children, and had found that their heads were rather above the average. The biparietal diameter was four inches and a half in each child. Last night he had operated upon a patient who had been brought into the hospital in a maniacal condition. She had a true conjugate of three inches, and the child was in the left occipito-anterior position. Dr. Edgar had seen the case with him, and agreed that symphyseotomy was possible, although the prognosis for the child was doubtful. The patient had been given a large dose of morphine before coming under observation, and he had been fearful about the life of the child in consequence of this. The separation of the bones after the operation was fully two inches. In the case seen with Dr. Coe there had been a separation of two inches and a half. The perinæum had been stitched, but the cervix had not been sutured, as it was not safe to do this where removal of the sutures could not be accomplished without risking the integrity of the pubic joint.

In the first two cases he had used a special form of bed—a canvas stretched over an iron frame, having an opening in the middle of the bed. Such a bed was very convenient—indeed, it was very important in securing good firm union of the symphysis.

Dr. McLEAN then reported on Dr. Edgar's case of symphyseotomy. He stated that there was no decided motion; only a yielding at the joint. It was the best union that he had ever seen after a symphyseotomy.

Dr. H. L. COLLYER said that symphyseotomy was applicable only to certain cases after very careful selection. Not only should careful pelvic measurements be made but an effort as well to determine as

accurately as possible the dimensions of the child's head. After the separation of the symphysis pubis the choice of version or forceps delivery seemed to depend entirely on individual preference. Personally, he preferred version. The operation should be done, if possible, when the head was free above the brim. If one attempted to drag the head through with the edges of the symphysis unprotected, he was bound to produce laceration. It was also important to have good assistance in order that injury be not done to the sacral ligaments. He preferred doing the operation above the symphysis, and making a small incision below the symphysis for drainage if found necessary. The bones should be very carefully coaptated so as not to include the bladder or urethra between them. The dressing that he preferred was a two-inch broad piece of webbing buckled around the hips, which very effectually prevented pubic mobility.

Dr. S. MARX said that if he were called to do a symphyseotomy now he still felt that he would refuse, notwithstanding the brilliant array of results just presented. His reasons were : (1) The possibility of delivering the child through a contracted pelvis by version ; (2) the danger of sepsis in an operation which can not be made a truly elective operation, and he could not conceive that symphyseotomy could ever honestly be made elective ; (3) the greatest danger was deep injury to the vagina ; (4) the danger of imperfect union at the symphysis ; and (5) the formation of fistulous tracts into the urethra, bladder, and vagina. He felt if the unsuccessful cases were faithfully reported there would not be so many obstetricians in favor of symphyseotomy. He believed it was much more dangerous than Cæsa-rean section. It was very seldom that one found in the reports of symphyseotomies that the patients had had a smooth convalescence ; there were usually irregular fevers extending over many weeks. The field for symphyseotomy must be extremely limited. When we took into consideration the fact that the child could be delivered by version through a pelvis in which the true conjugate was somewhat smaller than four inches it was evident that the operation had a limited field. In the cases in which symphyseotomy had seemed to him to be indicated, a resort to postural treatment by the Walscher method, combined with version, had given him a satisfactory result. He did not see how the operation of Dr. Ayers could be as surgical a one as the open method ; it was likely at some time or other to cause severe hæmorrhage. He had never done symphyseotomy, though many opportunities had offered, because he was convinced that it was a dangerous operation—one giving a mortality of from ten to twenty

per cent. in the children and possibly eight to ten per cent. among the mothers.

Dr. J. C. EDGAR said that the position of Cæsarean section was already well defined, but the same could not be said of symphyseotomy, for there had not been a sufficient length of time or a sufficient number of cases to settle its exact position. Many cases of apparently poor union would in all probability show a good result after a certain time, as was proved by his case just presented to the Society. He believed that the maternal mortality from symphyseotomy was in the neighborhood of six or eight per cent. Pinard had stated recently that he would not induce premature labor hereafter, because he had had such excellent results from symphyseotomy in thirty-six cases, in these he having lost only two. With a contraction of three inches and a quarter, it seemed to him at the present time that symphyseotomy was the best operation at our command, for it gave a lower mortality than Cæsarean section. The ultimate results of symphyseotomy were not yet known. With a moderate separation of the joint it did not seem to him necessary that there should be lacerations of urethra or bladder. A separation of over two inches rendered such accidents liable to occur. It was very easy to say that we should carefully measure both the pelvis and the child's head, but we were not yet in a position to measure the child's head accurately. He had tried to use Farabeuf's measuring forceps, but their practical application was very unsatisfactory, as it was necessary to have a very full dilatation of the cervix. A difference of half an inch in the biparietal diameter seriously affected the prognosis. He agreed with Dr. Marx that, in view of the complications and ultimate results, symphyseotomy should not be looked upon as a simple operation. He was favorably impressed with Dr. Ayers' method, yet he could not but think that by it there was some danger of wounding the veins of the corpora cavernosa of the clitoris. He would not advise any one to open into the vagina for drainage, because this was exceedingly liable to result in sepsis.

Dr. A. B. TUCKER said that he would much prefer symphyseotomy or Cæsarean section at full term to the induction of premature labor, for he believed that the maternal mortality would be less from the adoption of such a course. A year ago he had been much opposed to symphyseotomy, but now that he had had a little experience with the operation, he had changed his opinion regarding it. By a careful selection of the cases, and careful operating and after-treatment, there should be no special danger from the operation.

*Supplementary Report of a Case of Puerperal Septicæmia of Prolonged Duration and with Manifold Complications.*

BY A. F. CURRIER, M. D.

(See page 317.)

*Specimens of Septic Uterus.*

Dr. E. B. CRAGIN presented specimens from two cases in which treatment of the endometrium alone would have had very little effect. The first specimen was a uterus with multiple abscesses through it.

CASE I.—Mrs. T., a frail woman, aged twenty-six, was delivered of her first child in February, 1893, and her second in March, 1894. Her menstrual history had been normal, and, although thin and anæmic, her general condition was fair. When seen by me in consultation, May 6, 1895, the following history was obtained: She had been delivered of her third child April 29th without instruments; labor easy and rapid. On the third day she had a rise of temperature. From that time till the day I saw her the temperature ranged from  $102^{\circ}$  to  $106^{\circ}$ . On May 14th she had had a severe chill lasting twenty minutes. May 6th her temperature was  $105^{\circ}$ ; pulse, 102. Her uterus was curetted and irrigated by me, considerable *débris* being removed; a strip of iodoform gauze was introduced for drainage, and the uterus ordered irrigated twice daily after removal of gauze. The patient's condition gradually improved, and from May 14th to May 17th the temperature and pulse were but slightly if at all above normal, and the uterine irrigation was discontinued. On May 18th the evening temperature began gradually to rise, although the morning temperature and pulse remained normal. On May 29th I again saw the case in consultation; found the uterus large and soft, with a mass behind the uterus, and another high up and to the right, both of which seemed to me to contain pus.

Vaginal hysterectomy was advised and performed by me June 2d, with the assistance of Drs. Howard C. Taylor and Sengstacken. The Volsella, when applied to the cervix, opened into an abscess of the cervix containing about two drachms of pus. The tissue of this portion of the uterus was so friable that it tore away as soon as the Volsella was applied. The operation was completed with difficulty, and the pelvis drained with gauze. The uterus was found riddled with abscesses holding from a drachm to half an ounce of pus. Near the junction of either tube with the uterus, and apparently starting in the

interstitial portion of the tube, were abscesses: that on the right side being about the size of a lemon, and adherent to the anterior abdominal wall; that on the left side had a portion of omentum adherent to it. The tubes, except in their interstitial portions, did not seem to contain pus. On the right side of the uterus was an abscess bulging out between the folds of the broad ligament. The specimen is here presented.

The patient was not benefited by the operation, but gradually grew weaker, and died June 7th, five days after the operation.

Had I removed the uterus earlier the result might have been different; but the patient improved so markedly under the curettage and intra-uterine irrigation that nothing more radical seemed indicated.

CASE II.—Miss S., single, native of Germany. Admitted to Roosevelt Hospital November 26, 1895, with the following history: Menstruation appeared at thirteen years of age; had been regular and normal until December 24, 1894—her last period. She was delivered of a child October 26, 1895, without instruments. She remained in bed only four days after delivery. On the third day she had a rigor and febrile movement, and has been ill ever since, although not confined to bed until recently.

On November 24th she began to have severe pain in the pelvis, not localized, ushered in with rigors. Since then she has been confined to bed. She is tender all over the lower abdomen, more markedly on the left side, and extending upward as far as the umbilicus. She has vomited only once. Urine contains a trace of albumin.

On admission to the hospital, patient's temperature was  $103.4^{\circ}$ ; pulse, 126.

Her condition gradually grew worse, temperature ranging from  $100^{\circ}$  to  $104.8^{\circ}$ ; pulse, 94 to 128. Tenderness increased and vomiting recurred at intervals.

Examination showed the uterus large and soft, with masses on either side thought to be pus-tubes.

Vaginal hysterectomy was performed December 3, 1895. The tissue of the uterus was very soft and friable, thus making downward traction difficult. On opening the pouch of Douglas a collection of pus in the left tube was evacuated. After securing the uterine arteries with clamps, the uterus was divided through the center and each half removed separately, clamps being used instead of ligatures. The pelvis was then packed with gauze.

It is now two weeks since the operation, and although the temper-



ature and pulse have not quite reached normal, the patient is steadily improving and gives promise of making a good recovery.

Referring to the specimens, Dr. Cragin said that the first one showed an unusual number of abscesses, and also illustrated the length of time that the woman could continue markedly septic, and yet with the septic process situated chiefly in the pelvis. He had reported the second case to show that there were a few cases in which there was a prospect of cure by vaginal hysterectomy. There appeared to him to be three classes of cases, viz.: (1) Where the disease is limited to the endometrium and treatment of the endometrium is indicated; (2) a class in which there is general infection, and in which an operation is not warranted, as they are almost invariably fatal; and (3) a class of cases in which the disease is mostly in the uterus and appendages. This was the class illustrated by his specimens and report. In cases, therefore, in which masses were found indicating collections of pus in the pelvis he would advocate an operative procedure, and preferably through the vagina.

#### DISCUSSION.

Dr. A. PALMER DUDLEY said that he hoped the time would arrive when physicians would realize that they could not go to a case of obstetrics without being sure that they were not septic, or their patients septic. Many years ago he had called attention to the fact that in a large number of cases of puerperal fever it would be found, by a careful study of the history, that there had been pelvic disease and a focus of inflammation in the pelvis ready to light up. He believed that it would come to be an accepted fact that every wound at the close of parturition should be at once sewed up. Why should an obstetrician wait several days in the face of an elevation of temperature after delivery before invading the offending pelvic structures? In this connection he would like to ask why Dr. Cragin had not operated earlier upon his case. He desired to urge every obstetrician to be prompt in repairing all lacerations occurring during parturition.

Dr. CRAGIN explained that his case was forty miles from the city, and he had not seen it until the seventh day.

Dr. MARX said that he did not think that Dr. Dudley's point was well taken. If this practice were adopted in this city he felt sure there would be a great many more cases of sepsis. He said this because the larger majority of practitioners were not cleanly. Auto-infection had been referred to by the reader of the paper; it was an excellent thing to throw the blame back upon Nature. Sepsis meant

only one thing, and that was faulty technique. The people must be educated to the fact that when sepsis arises and the process is local, they must promptly accept the surgeon's advice and submit to operation. A delay of a very few hours often meant a fatal termination. In these cases of septic endometritis he felt that the best treatment was curettage. Many seemed to be afraid to invade the uterine cavity to look for septic matter. The old teaching was that we must wait for a stinking lochia before doing this; but it had been his experience that stinking lochia was the exception especially early in these cases. We should not hesitate to invade the uterus, and, finding septic matter, at once resort to curettage with a sharp curette. The question had been raised regarding the activity of the kidneys in cases of sepsis. As Dr. Currier had administered large doses of caffeine and other heart tonics, this would seem to explain the diuresis in this particular case. It certainly was not an epiphenomenon of sepsis.

Dr. W. EVELYN PORTER said that he had seen quite a number of cases of puerperal septicæmia in Bellevue Hospital, and while observing these he had become thoroughly convinced that the best method of preventing the advance of sepsis, both in early and late stages, was by frequent irrigation. Of course this was particularly efficacious in the early stages—*i. e.*, as soon as there was an elevation of the temperature. By frequent irrigation he meant every hour or two. A flexible catheter should be introduced well to the fundus and left in the uterus between the douchings. The end of the catheter was, of course, closed in the intervals. The patient need not be disturbed very much, and the process of cleansing through a large catheter of this kind was exceedingly thorough. It had been his practice to use first a 1-to-8,000 to 1-to-10,000 solution of bichloride of mercury, and follow this with two quarts of plain water. Subsequently plain water was used for the irrigation. If the sepsis be severe, curettage with sharp curette and subsequent irrigations should be tried. This method seemed to him preferable to the gauze packing. He felt that the general practitioner could prevent sepsis more efficiently by this practice of frequent irrigation than by any other established method.

Dr. McLEAN said that he agreed with Dr. Currier that, as a rule, the stomach was quite tolerant of nourishment in these cases of severe sepsis. He had been particularly interested in this case because of a conversation that he had had with the reader of the paper, and in which allusion had been made to malaria as a possible factor. He had objected to the introduction of this very uncertain element on

general principles, and he had stated that the history seemed to him typical of purulent effusion in some other part of the body—*e. g.*, an empyema. The subsequent history of the case had borne out this opinion.

Dr. A. M. JACOBUS said that in contrast to some of the cases reported and the treatment recommended, he desired to report a case that he had seen in consultation last summer. He had first been called twelve days after a difficult version and labor, in which the perinæum had been lacerated but not sutured. On the fifth day the patient had had a sudden rise of temperature and a severe chill. The physician in attendance had immediately resorted to irrigation of the uterus several times a day with a 1-to-2,000 bichloride solution, but the patient steadily grew worse, and developed what her attending physician thought was puerperal diphtheria. The physician had then curetted her several times in several days, had repeated the douches, and, in addition, had swabbed out the uterus with a fifty-per-cent. solution of chloride of zinc. The patient's condition continued from bad to worse and even critical. It was at this juncture that Dr. Jacobus, at the request of the family, was called to see the case. He found the patient somewhat delirious, with a temperature of 105° F., pulse 120, and having a ruptured perinæum, a moderately lacerated cervix, and a large, tender uterus. The perinæum, vagina, and cervix uteri were coated with a thin, whitish deposit and curds, resembling a bad case of aphthæ. He had been deeply impressed with the fact, as the attending physician narrated the history, that there had been too much intra-uterine treatment in the case. Dr. Jacobus suggested a cessation of the previous treatment, douched the uterus with boiled water saturated with boric acid, and afterward with a one-per-cent. solution of the permanganate of potash. Packing the uterus had been avoided, as he thought this locked up the discharges and favored sepsis; but he had partially filled the vagina with a powder of equal parts of boric acid and bismuth subcarbonate. A little loose gauze, however, had been placed in the vagina and between the lacerated surfaces of the perinæum. The next day this simple douching was repeated once in the uterus, the patient became very much better, and the renewal of the vaginal dressing for three days more was sufficient to establish a rapid and thorough convalescence. Dr. Edebohls had reported a fatal case following a single douche of 1-to-4,000 bichloride of mercury after a non-puerperal curettage, and he (Dr. Jacobus) believed that the strong solution of mercury and zinc had much to do with the critical condition of the case he had reported.

He believed with Dr. Dudley that we should be not only thoroughly clean in our obstetric work, but that we should sew up all lacerations at once.

Dr. E. A. TUCKER said that his experience had been rather different from that detailed by some of the previous speakers. All the cases that he had treated up to the present time had not been curetted with the sharp curette. If there were septic matter remaining in the uterus, he preferred to remove it with forceps or the fingers, and to avoid as far as possible any disturbance of the endometrium. Ordinarily the finger was sufficient for this purpose, but in a very deep uterus a placental forceps might be required. There were many practitioners who did not know how far to carry curettage, and hence the use of the sharp curette was generally dangerous. His practice had been to give one, or possibly two, thorough intra-uterine irrigations and avoid tamponing the uterus. He avoided frequent irrigation.

Dr. DUDLEY said that he had spoken entirely from his own experience of twenty years. He had yet to see the first case of sepsis, although he had met with all manner of formidable obstetric complications.

Dr. CURRIER, in closing the discussion, said that he had been deeply interested in the cases reported by Dr. Cragin, which confirmed him in the belief that only those cases of puerperal sepsis were suitable for hysterectomy in which there was also disease of the appendages. These cases also showed that it was extremely difficult to fix a time limit in a given instance to perform hysterectomy. He also agreed with Dr. Cragin that where hysterectomy seemed indicated the vaginal operation would probably be preferable. He was disposed to accept Dr. Dudley's views rather than those of Dr. Marx regarding operations on puerperal women. He could not believe that there would be more deaths if these wounds were sewed up. The true scientific and surgical method was to close up every open wound, not only in the perinæum, vagina, and vulva, but in the cervix. Drainage from open wounds was, of course, advantageous, but only in those cases which were septic at the time of labor. He did not think that the diuresis usually seen in these cases was due to the use of heart tonics, for the same condition was observed in cases where such stimulants had not been administered. It did not explain the diuresis in his case.

Regarding the possible malarial complication in the case, he would only say that the patient lived on the edge of a swamp and in a district where there were a number of very severe cases of malaria at

that time. The influence of malaria in this case had been suggested by the very prompt subsidence of some of the symptoms under the administration of Warburg's tincture. It should have been stated that there had been a fatal case of puerperal septicæmia in the same room some years previously, although the room had since been painted. It seemed to him that the uterus might be quite as severely wounded with the fingers or the placental forceps as with the sharp curette; indeed, the case cited by Dr. Tucker bore out this view. The sharp curette, in his opinion, was a much safer instrument than the placental forceps where there was equal experience or inexperience in the use of both.

Official Transactions.

ARTHUR M. JACOBUS,  
*Recording Secretary.*

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Stated Meeting, January 7, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.

*Oöphorectomy for Hystero-neurosis.*

DR. EGBERT H. GRANDIN thought a case which he was about to relate was worthy of being placed on record for the reason that it was one of the few cases where an empirical operation for the cure of a neurosis had up to date proved a success. As all knew, it was rather dangerous to operate simply for the possible cure of a neurosis. As stated on a former occasion, he had been led to do this in one instance, with the result of a ghastly failure. He made up his mind then, eight years ago, that he would never again do a major operation simply for the cure of a neurosis, but nine months ago a case presented itself which had made him repent of his resolution.

The patient was a girl, nineteen years of age, whose menstrual history since its inception at the sixteenth year had been that of torture. At each menstrual period, and often for days previously and for ten days afterward, she had suffered from epileptic attacks of such a character that for the last six months her parents had been obliged to give her chloroform in order to control them. She had been systematically treated by bromides, etc., at the hands of an experienced and capable general practitioner. Dr. Grandin found a girl whose brain was, so to speak, developed beyond the capacity of the body. She was thoroughly educated, but was infantile in appearance, and



on examination the pelvic organs were found to be little developed. The uterus was infantile, and operation showed the appendages to be in the same condition. The examination revealed no disease, and he said at once that it seemed to him nothing could be done—absolutely nothing. He was utterly opposed to an operation. The child said—for she was only a child, although nineteen years of age—that life was not worth living, and even if the operation which suggested itself was purely empirical, she would rather take the risks associated with it than suffer. On weighing the question, and determining the fact that the epileptic attacks occurred only just before, during, and just after the periods, and with the understanding that the operation was to be done on an empirical basis entirely, and stating that the risk was about one to two per cent., he removed the appendages. The ovaries were small, but on gross appearance were healthy. This was nine months ago. The girl had been in his office to-day, and said she had had no epileptic attacks whatever since. A few times, when she would have had a menstrual period had she not been castrated, she said she had some feelings of the aura which had preceded the attacks formerly, but she had during these nine months had no epileptiform attack, and was able to help her mother about the housework, which she had not been able to do before. Bromides had been cut off the last four or five months. He had even gone so far in his protest against the operation as to have the parents sign a document stating that they understood the operation which was about to be performed was purely empirical. The girl made a perfectly satisfactory recovery, except that about thirty-six hours after the operation the pulse rose to 130 and much higher. There was no rise of temperature; no sepsis; the bowels moved spontaneously, yet she had this tachycardia. Sixteen hours later he met Dr. Marx, who suggested that she be given a fiftieth of a grain of glonoin every hour under the skin. This was done for twelve hours. The pulse then came down, and she went on to complete recovery.

*Embolism complicating Abdominal Section.*

BY J. M. BALDY, M. D., PHILADELPHIA. (By invitation.)

(See page 321.)

DISCUSSION.

The PRESIDENT, in opening the discussion, emphasized the fact that ordinary cases of septic phlebitis were not referred to by the reader.

He had distinctly stated that his cases were not accompanied by septic symptoms. Among the points worthy of discussion were the question of keeping patients longer abed, and also the occurrence of emboli as a possible explanation of the phenomena described by him.

Dr. GEORGE M. EDEBOHLS had had some experience similar to that of Dr. Baldy, although not quite as extensive. He had therefore been led to give the matter some thought, but had not become fully convinced that he understood the exact pathology of all the various types of cases grouped in the paper. It seemed to him that Dr. Baldy had improperly headed his paper Embolism following Abdominal Section. The great majority of the cases which he had related—twelve or fifteen in number—were cases of ordinary milk leg or phlegmasia alba dolens which had followed aseptic abdominal sections. They differed in no respect from cases of phlegmasia alba dolens as observed in the puerperium. Dr. Edebohls had also seen similar cases, and was in no way able to discriminate between the post-operative and the puerperal forms of phlegmasia alba dolens. Both began with whiteness and swelling and pain at the upper part of the thigh, which gradually extended down the whole length of the affected limb, and in the course of more or less time both usually got well. Such was one class of cases described in the paper, and to the list Dr. Edebohls added two cases seen by himself. In 1890 he curetted the uterus, liberated the organ from adhesions, and performed ventral fixation on a woman who fifteen days later developed typical phlegmasia alba dolens. There being no sepsis to explain the complication, and never before having met with the condition after operation, he was much alarmed and consulted Dr. T. Gaillard Thomas. Dr. Thomas informed him that in his long experience he had seen but three or four similar cases. About two years elapsed before the patient lost all pain and œdema of the affected extremity, and even now, after five and a half years, that leg was somewhat larger than the other, although no longer a source of the least inconvenience. In fact, being a slender woman, she was rather proud of this leg, as being the more shapely of the two.

Dr. Edebohls had met with his second case a little over a year ago. This time phlegmasia alba dolens followed abdominal section for tuberculosis of the peritonæum and double ovarian papilloma. It developed on the tenth day after operation, was moderate in degree, and disappeared in about two weeks.

Regarding Dr. Baldy's four or five cases of rather sudden death occurring four to six weeks after abdominal section, more especially

after hysterectomies for fibroma, Dr. Edebohls thought the explanation was not difficult, even without resorting to the theory of embolism. For many years pathologists had recognized the association of fatty degeneration of the heart and the so-called brown atrophy with fibroma of the uterus. These patients were liable to die suddenly after abdominal section, or in fact after any kind of operation, the heart stopping in diastole and being distended to paralysis by accumulated blood. He had himself reported two such cases and demonstrated the specimens before this Society. A third case followed a simple curettage and trachelorrhaphy. The operation was perfectly clean, the convalescence entirely satisfactory. Four weeks after the operation the husband suddenly summoned him, saying his wife had fallen over and was dying. Dr. Edebohls fifteen minutes later found her dead. Autopsy showed the walls of the entire right ventricle and auricle one thin layer of fat. He then felt thankful that the patient had not died under ether on the operating table.

Dr. Edebohls thought the two classes of cases described in the paper ought to be grouped under different heads. The pathology of the first class was the pathology of phlegmasia alba dolens, whatever that was, whether a phlebitis, whether an angioleucitis, certainly not embolism. In the majority of the cases of the second class—those of more or less sudden death—he would suspect the heart. In at least one of them, however, that in which gangrene of an arm followed cœliotomy—Dr. Baldy's theory of embolism appeared to be the only tenable explanation.

Dr. J. RIDDLE GOFFE said he had no theory to advance in explanation of sudden death in the one class of cases, but he had had one case of phlegmasia alba dolens following hysterectomy for fibroid tumor. The patient was operated upon last spring, had no fever, no disagreeable symptoms, no sepsis, convalescence perfectly satisfactory until the second week, when she suddenly complained of pain in the left leg. This gradually increased, and swelling appeared, extending from the thigh downward. He regarded it as a case of milk leg. The patient remained abed two weeks, then insisted on going home, where he treated her three or four weeks longer. She then insisted on taking a trip to Virginia, and he had heard nothing more from her. This was the only case of either of the two classes which had come under his observation.

Dr. H. N. VINEBERG had recently met with a case of phlegmasia alba dolens following abdominal section performed for what proved to be an encapsulated ascitic accumulation in a woman who had

some time before been operated upon for salpingitis. Dr. Vineberg found the adhesions at the last operation so extensive that he was compelled to remove the uterus. Everything went well until the twentieth day, when, as the patient was anxious to go home, she was allowed to get up. Immediately on standing she felt pain in the left leg, and the clinical symptoms of phlegmasia alba dolens developed. She had a temperature for a day or two. The symptoms gradually disappeared, and as she insisted on going home, she was allowed to do so a week later, but was kept abed a week longer after arriving home. She still had a little swelling of the leg and occasional pain.

Dr. CLEMENT CLEVELAND rose to thank Dr. Baldy for his interesting paper, and to put on record a case which illustrated its theme. Several years ago he removed an ovarian tumor in a woman who was very anæmic and in whom anæmic murmurs could be heard, but it was not clear that there was any lesion of the heart. She was apparently convalescent, when, two weeks after operation, she suddenly had pulmonary œdema, and died within twenty-four hours. Post mortem revealed extensive embolism of the coronary artery and some valvular lesion, the exact nature of which he had forgotten.

He thought the author had properly laid stress upon the length of time patients should remain in bed after operation. He was himself particular to have them remain in bed at least three weeks after laparotomy, sometimes longer.

Dr. HORACE TRACY HANKS thought the two classes of cases to which the author had called attention were very interesting. Regarding the second class, he had himself had no case of sudden death which could not be accounted for by the lesions discovered. Of the first class—phlegmasia alba dolens following operation—he could recall two cases as well marked as any which he had ever seen during the puerperal state. One had followed operation for ovarian cyst, the other hysterectomy for fibroid. Unlike Dr. Baldy's cases, they gave premonition of the trouble fully twenty-four hours in the form of pain, stiffness, and rise of temperature. He could see no reason why one might not have phlegmasia alba dolens following severe operation in the pelvis, whether it was above or below the pubes, as well as after labor.

Dr. CHARLES L. DANA, present by invitation, said he had naturally supposed, on receiving an invitation to discuss the subject of embolism after laparotomy, that it meant embolism of the brain. He had listened to Dr. Baldy's paper for facts which might point to such embolism after operation. In one case he had spoken of paralysis

followed by death, but the character of the paralysis was not stated, so that it was impossible to judge whether it was cerebral or otherwise. None of the other gentlemen seemed to have had any cases of cerebral embolism follow operation. To neurologists, therefore, the discussion was of interest as showing that this accident seldom occurred. Some time ago he had collected the histories of some two hundred cases of hemiplegia following embolism, thrombosis, and hæmorrhage, and in none was this accident the result of a surgical operation; nor did any of them form sequelæ of surgical operations. We should, then, be thankful that hemiplegia was not one of the dangers of laparotomy. If the one case alluded to by Dr. Baldy was the result of cerebral embolism, it would suggest the wisdom, as already pointed out, of keeping patients quietly in bed a long time after operation. The history of embolism following labor showed that it almost always occurred after the second week, and nearly always on the first or second day after getting up. If it should occur after laparotomy, he should suppose it might be due to not keeping the patient abed a sufficient length of time.

Dr. H. J. BOLDT believed no reason had been given why there should be embolism or phlegmasia alba dolens following abdominal section. He had himself met with a few cases of phlegmasia alba dolens.

Dr. G. H. MALLETT asked the author whether he had seen phlegmasia alba dolens follow minor operations. Two years ago a case occurred in the Woman's Hospital following amputation of the cervix and perineorrhaphy. It began about the tenth day in the left leg; later the right leg was affected. The patient was abed in the hospital four weeks, then went out in bad condition.

Dr. BALDY closed the discussion. In reply to questions, he had never himself seen these conditions follow a plastic operation, but believed there had been one of phlegmasia alba dolens in Philadelphia. Regarding how long the patient should be kept abed after abdominal section, it was his custom not to allow her to go home before the end of the fourth week; perhaps she got up the middle of the third or later. Regarding the ætiology, referred to by Dr. Boldt, he felt uncertain not alone as to the ætiology, but also as to the pathology. He realized there must be a distinction between the two classes of cases. He had grouped them together in the paper only because he could give no positive explanation of either, although the possibility of embolism as a cause had suggested itself. Sudden death, it was true, might occur from fatty degeneration of the heart. No one would



question that fact. But we had to consider that here was a group of cases in which death followed operation and, he thought, was clearly due or closely allied to the operation. He did not believe the patients would have died at that time had the operation not been done. Therefore he regarded death as due to the operation. In two cases post mortem was made and there was no fatty degeneration of the heart found. In the third case there was distinct paraplegia, and certainly paraplegia could not be due to fatty degeneration of the heart. If embolism was not the cause of death, what was? If it was not found, he would feel that it was more his own fault for not being able to find the embolus than that it did not exist. The absence of other trouble was negative evidence in favor of embolism. The case of gangrene of the arm could not be explained on any other theory.

He did not believe in the theory that fibroid tumors caused fatty degeneration of the heart. We heard a great deal about the harm which fibroids did, but he believed that in the vast majority of cases they were perfectly innocent tumors. He had never seen them in his own clinical experience accompanied by fatty degeneration of the heart.

The cases of phlegmasia alba dolens, he thought, did, as a rule, belong to an entirely different class as suggested. He had not discovered how they occurred or why they occurred, but had simply observed the clinical fact. Some began with pain in the foot, others with pain in the hip. He had had as many as a dozen or fifteen cases, and all had run much the same course. After Dr. Edebohls' statement that one of his patients recovered only after two years, he had hope for his own, who still had swelling of the leg. It was singular that the cases had come in groups, a fact which had suggested sepsis, but sepsis had not existed. For the same reason atmospheric or climatic conditions had been suggested as a cause, but, so far as one could judge, they had not been unusual.

### *The Pathology and Treatment of Shock.*

BY EUGENE BOISE, M. D., GRAND RAPIDS, MICH. (By invitation.)

(See page 325.)

### DISCUSSION.

Dr. GRANDIN said the paper had suggested an explanation of shock which he had not before thought of. Where he had seen shock, it had been due to the fact that the woman had lost a great

deal of blood, either before the operation, during the operation, or subsequent to it. In other words, aside from the possible explanation of acute sepsis, which he was skeptical about, to him shock meant loss of blood or acute anæmia of the nerve centers. Whether this anæmia affected the cerebro-spinal and sympathetic systems of nerves in the manner laid stress upon by Dr. Boise, he was unable to say. But of one thing he was pretty sure, judging by his own experience, and observation of that of others, that shock was one of the things, barring organic disease of the heart, which could be prevented provided we saw the patient before she had been reduced to the condition of acute anæmia. In other words, shock (after abdominal section) to him meant usually loss of blood. This point was not a new one at all. His attention had been called to it a number of years ago at the Obstetrical Society by Dr. Gill Wylie in a discussion upon this subject. Following Dr. Wylie's teaching, he no longer saw shock as he did during his early days as an operator, for the simple reason that when he had a patient under observation long enough he took steps to guard against it. He put her in as good condition as he could before operation, and was careful to spare her as much blood as possible during operation—not through lightning-like rapidity of operation, however! The length of the operation was not so important as that of loss of blood. He never hurried the operation at the risk of failure to tie ligatures securely. He believed that many cases of shock following operation, reported as such, were due to hæmorrhage induced by haste to complete a number of operations during the hour.

Regarding the treatment, which had been touched upon, he had come to rely more and more upon a hypodermic of morphine immediately after the operation and before the patient emerged from the anæsthetic, with a view to keeping her quiet and avoiding exhaustive vomiting. Moreover, the best remedy we had against early shock was opium. Secondly, he employed hot saline rectal irrigation repeated hourly. When he said irrigation he was not referring to a quart or two quarts of water thrown up the rectum, but to actual irrigation for a period of fifteen or twenty minutes, repeated every hour or two. Thirdly, contrary to the experience of Dr. Pryor, he had found hypodermic injection of strychnine, one fifteenth of a grain, repeated every half hour for thirty-six hours if necessary—in one case at the French Hospital it had been used for thirty-six hours—was one of the most valuable remedies, in that it toned up the heart. Further, he firmly believed in glonoin where the indications existed, not in

large doses, at least one twenty-fifth of a grain hourly till the pulse became slower.

Dr. HANKS wished first of all to express his great gratification on listening to the very scholarly and instructive paper. He had little to say by way of discussion further than to express the belief that those who did much gynæcological work to-day met with fewer cases which worried them on account of shock than formerly; not, however, because they gave more hypodermic injections of strychnine or of nitroglycerin. He used very little of these in his practice, and the house surgeons of the hospital were cautioned against crowding strychnine every two or three hours immediately after operations. He believed that half a dozen patients whom he had known to die had died as a result of taking too much strychnine and nitroglycerin. They had had better results of late, not because they had used more nitroglycerin or strychnine, but because they had prepared their patients better, and had done their work better. No patient was operated upon by him to-day at the Woman's Hospital, or in his private practice, who had not first had six ounces of fluid injected into the rectum, and usually one to two ounces of that was whisky. Before this they received by mouth a generous dose of brandy or whisky. He believed that was a great preventive of shock.

Dr. J. M. BALDY thought that some interesting points had been raised in the paper, especially in relation to the ætiology of shock. But the explanation advanced by the author was not altogether new; the speaker had known of it from former papers of the same author, and had frequently considered whether hyperirritation was not the cause of the shock in a number of cases seen by himself. He had at times thought, with Dr. Grandin, that shock was hæmorrhage, but against this view was the fact that he had seen a number of cases in which a terrific amount of hæmorrhage had caused no shock, while, on the other hand, he had seen some cases in which there had been very little hæmorrhage but excessive shock—sufficient to kill. These opposing facts had to be reconciled in some way in attempting to come to a conclusion as to the immediate cause of shock. He certainly believed that it was not always hæmorrhage, although he agreed with Dr. Grandin that the vast majority of cases recorded as post-operative shock were really hæmorrhage. But that was wandering somewhat from the subject.

Dr. BALDY believed that in one case shock was due to hyperirritation, in another to anæmia, and in another to some condition or cause with which we were not yet familiar. In other words, shock

was such a complex condition that it could not be put down to any one cause in every case. He was free to state that he personally saw less of shock than many of his colleagues claimed to see. Judging by their statement of the condition, he believed the so-called shock was due to over-stimulation with ether and withdrawal of that excitant at the close of the operation. The condition of the patient was similar to that seen in shock, but in lesser degree. He had seen only a few cases of extreme shock, and all had died.

Regarding the use of strychnia, Dr. Baldy felt very much like Dr. Pryor. He had never seen it do any good, yet he had used it in large doses—so large as to frighten the assistants and nurses: say a fifth to half a grain the first three hours, and a fifteenth of a grain every three hours for two days subsequently. There had been no effect on the patient's condition, either good or bad. He had come to the conclusion that strychnine was practically useless, and believed with Dr. Hanks that more patients were killed by medication, as carried out in general hospitals, than died from hæmorrhage, shock, and all conditions so classed.

Dr. CLEMENT CLEVELAND felt very grateful to Dr. Boise for his thoroughly scientific paper. It promulgated views first expressed by the author several years ago, and was highly original. By following the suggestions given, Dr. Cleveland had profited in his work at the Woman's Hospital. He had used codeine, and was certain of having obtained positive beneficial results. Regarding strychnine he was less positive.

Dr. MALCOLM McLEAN had heard little or nothing said during the discussion on the causes of shock of the effect of exposure of the peritoneal surfaces to the air. He felt certain that he had seen such exposure lead up to shock in a number of cases in the hands of different operators. Two fatal cases of simple ovariectomy had been reported to the Society some years ago, in which he was disposed to attribute death to this cause. One was in a young girl; the ovariectomy was very simple, but she died from violent dilatation of the whole intestinal tract. Dr. McLean had called the operator's attention to the fact that he had operated in a room in which the temperature was low, and for some reason the guts had extruded. It was to this exposure of the intestines to a *dry and cool* air—for instance at 72° F.—that he believed death was due. It was Dr. McLean's custom before opening the abdomen of any patient to have the temperature of the room above 80° F. and the air moist. It was to these precautionary measures that he would attribute the absence of shock in several cases

of exposure of the intestines to the air observed by him the past few months. In one case operated upon by him within the past two weeks it seemed that all the intestines became exposed, Trendelenburg's posture being of no aid in retaining them; the operation was a long one, the intestines had to be manipulated a great deal, and he had no doubt whatever but what the patient would have had fatal shock had he operated in a room with the temperature at 70° F. and the air dry.

Dr. McLean had seen shock where there had been almost no blood lost, and no other cause had suggested itself to his mind except possible pressure and traumatism in the region of the solar plexus during the handling of the abdominal tumor.

Dr. RALPH WALDO thought the term shock had been used to cover "a multitude of sins." If a patient died of hæmorrhage, either during or shortly after operation, it was scarcely fair to call it a case of shock. As one of the speakers had already stated, shock was not hæmorrhage, for we saw cases of genuine shock in which there had been very little hæmorrhage, and other cases of marked hæmorrhage with no shock. Regarding the treatment of shock, he had fallen into the habit of using nitrite of amyl more than any other agent in bad cases. The mistake was common of not using it freely enough. One could not hurt his patient by letting her breathe freely of it as applied to the nose on a piece of cotton. With few exceptions—the exceptions including nitrite of amyl and rectal injections—the more medication one employed in shock as routine treatment the worse off would be his patients. He had seen patients given all sorts of medicines at short intervals, running from one thing to another, and he believed it had done them a good deal of harm.

The PRESIDENT raised the question of differential diagnosis between "prolonged" or "delayed" shock and hæmorrhage occurring after operation. He did not say *secondary* hæmorrhage, because he regarded all such cases of hæmorrhage as primary. The patient's life might depend upon the establishment of the correct diagnosis. A case in point was that of a patient from whom he removed a large fibroid a week ago. He watched her about twenty-four hours and decided not to open the abdomen, supposing that she was suffering from prolonged shock. Autopsy showed that she had been bleeding all this time from the slipping of the ligature.

He thought that no one could deny that shock might occur without hæmorrhage. He had known death to result in a patient who had not lost six ounces of blood. He agreed with Dr. Hanks that in hos-



pital practice one could not be too careful with hypodermic medication. Bystanders must often be startled at the rapidity with which hypodermics of powerful alkaloids were sometimes repeated by the house staff. He had a patient, aged fifteen, who, after a severe cœliotomy, received about a twenty-fifth of a grain of strophanthin in divided doses, and died suddenly a few hours after the operation from supposed heart failure; he did not doubt that death was due to the drug.

The hæmorrhage and shock gave rise to different symptoms, yet the diagnosis was difficult. The speaker had opened the abdomen for supposed hæmorrhage and found none, while, on the other hand, he had delayed opening it, supposing that the patient was suffering from shock, when hæmorrhage was present.

Dr. EUGENE BOISE said the President's question—differential diagnosis between shock and hæmorrhage—was a difficult one to answer. There was a difference in the pallor, that of hæmorrhage being waxy, that of shock being more livid. In shock there was blueness of the finger nails and of the lips; in hæmorrhage there was pallor of the finger nails, tongue, lips, and conjunctiva. In shock there was apt to be profuse perspiration; in hæmorrhage this was not probable. In hæmorrhage the patient was restless.

Dr. BOISE thought we should not speak of shock as being hæmorrhage, although it might be complicated by it. After severe hæmorrhage one observed collapse, with thready pulse and pallor, but its pathology was different from that of shock.

He agreed with what had been said against over-medication. He seldom used strychnine, but had based his remarks upon the favorable reports of others. Dr. Boise used full doses of codeine previous to the operation, took steps to maintain the heat of the body, and if the operation were a long one, and there should be pallor or signs of impending shock, he did not hesitate, during the operation, to throw into the rectum at least a pint of hot water, repeated if necessary, from which he had always seen good effects. He had used nitrite of amyl and nitroglycerin, but his main reliance was codeine and hot water. Regarding whisky, Dr. Stephen Smith had stated a number of years ago that it was his custom to get his patients nearly intoxicated before operating, and he had never seen shock. This was correct reasoning, according to the hyperirritation theory of shock, for large doses of whisky relaxed the arterioles, causing injection of the face and conjunctiva.

The question of exposing the intestines, especially in a low tem-

perature, was an important one, and would largely account for the difference in the degree of shock between abdominal and vaginal hysterectomy. One should be exceedingly careful in all manipulations of the abdominal contents. Dry sponges were sometimes used to hold the intestines out of the way. They inflicted violence which he did not like. All irritation of the intestines and other abdominal viscera tended to produce shock.

Official Transactions.

ARTHUR M. JACOBUS,

*Recording Secretary.*

## TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

Stated Meeting, December 20, 1895.

The *Vice-President*, HENRY PARKER NEWMAN, M. D., in the Chair.

*Strangulated Hernia of a Cystic Appendix Vermiformis.*

BY WELLER VAN HOOK, M. D.

(See page 337.)

### DISCUSSION.

Dr. A. H. FERGUSON: I have listened with considerable interest to the report of Dr. Van Hook's rare case, and I desire to compliment him on the manner in which he has gone into the subject of hernial strangulation of the vermiform appendix. I have had occasion to remove two vermiform appendices in connection with strangulated herniæ of the cæcum. The appendix formed only a part of the contents. I believe Macready refers to three cases of vermiform appendix in connection with strangulated hernia, two of which were cystic and the other perforative.

It is thought by some authors that a cystic condition of the vermiform appendix may be caused by the hernial constriction, the appendix finding its way into the inguinal canal, remaining there for a considerable length of time, the constriction increasing, and the distal portion of the appendix dilating into a cyst. No history of previous attacks of appendicitis which would point to the constriction (as probably being an ætiological factor of the cystic condition of the appendix) is mentioned by Dr. Van Hook.

Dr. BYRON ROBINSON : The paper presented by Dr. Van Hook is a very suggestive one, and the condition he speaks of is rare. In order to determine the exact condition which exists in such cases we must open the abdomen. After conducting three hundred post-mortem examinations, and carefully noting the condition of the appendix and other organs, my experience teaches me that there is no such thing as a meso-cæcum. An appendix in a strangulated hernia is rare. In our last one hundred and seventy cases the cæcum and appendix were involved in inflammation to the extent of seventy-two per cent. ; the meso-sigmoid, eighty per cent. This shows that hernia of the appendix vermiformis is comparatively rare, because adhesions find the appendix stationary.

There are more hernias of the appendix vermiformis in females than in males. I have carefully noticed this in my post-mortem examinations. The frequency of the appendix in the pelvis in females is about thirty-five cases in one hundred : in males, from twenty to twenty-five in one hundred. This means that there is more motion in the female than the male appendix. It has therefore a greater chance to herniate, and the pelvis of a woman being larger, it is easier for the appendix to slip into the hernia. The length of the appendix varies from an inch to seven inches and a half. One appendix which we examined measured seven inches and a half, was as large as a finger, and resembled the small gut of a child. In one hundred and seventy adult cases examined, the average length of the male appendix was four inches and a half, while in the female it was a quarter or half an inch shorter. With reference to cystic degeneration of the appendix, in thirty cases of infants that were examined this condition could not be found. In examining fifty embryos, in not a single instance could a cystic degeneration be found. There was found, however, inflammatory action in several cases.

I do not like the term meso-cæcum as used by the essayist. I would call the condition an excessively developed cæcum.

Dr. HENRY P. NEWMAN : Dr. Robinson speaks of enlargement of the cæcum in the female as a cause of hernia.

There is greater relative frequency of displacement of the kidney and other abdominal viscera in the female than in the male, but this is to be attributed to the disturbing and relaxing influence of dress and habit, and to the local and general atonic effects of frequent childbearing. Hence we should regard hernia of the cæcum as due to the same ætiological factors as other hernial conditions, and not to generic or structural differences between the sexes.

Dr. J. T. BINKLEY : I have been very much interested in Dr. Van Hook's paper and have gained considerable knowledge from his exhaustive researches on this subject. There are one or two points in the paper that I do not quite comprehend. In operating upon these cases I have seen the appendix rupture on the anterior surfaces fully as often as upon the posterior, although Dr. Van Hook says the latter more frequently occurs. I have operated fifty times for appendicitis.

Another question I would ask is with reference to hæmorrhage following separation of recent adhesions in herniotomies. Can we separate large areas of adhesion and let them fall back into the abdominal cavity without fear of hæmorrhage or without the formation of new adhesions? I recently did an abdominal section in which the adhesions were so extensive that I found it necessary to drain with gauze, having operated a third time on the same patient. As the woman is dependent, unless she is relieved of these adhesions the operation will do her no good. I was thinking that at the end of ten days or more I might reopen the abdomen and break up the adhesions caused by the drain without having as much hæmorrhage as followed the separation of the old adhesions.

Dr. ROBINSON : In reply to Dr. Newman, I would say that the cæcum is excessively developed. There is no point in the intestinal canal that is so subject to variations. It is an enormous sac.

In reference to the remarks made by Dr. Harris—that the appendix is twice as large proportionately in infants as it is in adults—in examining thirty infants and fifteen embryos I find that the appendix is only slightly larger proportionately in infants than it is in adults.

Dr. Binkley talks about adhesions occurring from drainage. I have reoperated on seven cases for adhesions, and they were worse in those cases that were not drained. I do not think, therefore, that drainage causes adhesions.

Dr. VAN HOOK (closing the discussion) : Dr. Ferguson speaks of constriction as the cause of the cystic condition of the appendix. That is a question which has interested me very much, but Ribbert, who has made a careful study of the appendix in such cases, says that he finds at the point of constriction unmistakable evidences of prior inflammation. Steiner, who examined four cases, speaks of cicatricial masses in the walls of the appendix. I think this was the case in my specimen, although I could not demonstrate it, because I had cut the appendix off at a level below the site of the stricture. Nor do I think hernia had anything to do with the cystic formation in my case. If the cyst had been down for a long period of time, such might have

been the correct solution of the matter. But the hernia was reducible, it being slipped readily into the abdomen. Besides, the man wore a truss. The hernia rarely came down, and then we have no reason to believe that this mass which did occasionally appear was not a piece of omentum or a coil of intestine instead of the appendix. Finally, the patient had a feeling of tenderness and discomfort in the abdomen for four years before the operation, whereas the rupture had only existed a year and a half. His discomfort was, I think, due to the presence of this distended appendix.

I have not found in the history of the thirty-two cases I have studied that there was preceding appendicitis, although one would expect it.

When I spoke of a meso-cæcum I had in mind the retrocæcal connective tissue. Hildebrand studied eighty recorded cases of inguinal hernia of the cæcum or caput coli, and he believes that the colon in some cases works its way down from its somewhat elevated position by gradual relaxation of the connective tissue which maintains it in position to the fascia; it was the elongation of these connective-tissue masses I had in mind, and not a meso-cæcum.

I mentioned in my paper that flexion can be a cause of strangulation of the appendix, and that obstruction may result therefrom. There is one case on record where this condition took place, as was demonstrated post mortem.

I speak of retroperitoneal suppuration in this connection, because the diverticula which occur in these cysts are noted on the posterior surface—within the folds, as it were, of the mesenterium. It is known that fluid injected behind the appendix, between the plates of the mesenterium, passes into the loose tissues between the folds of peritonæum, lifts the colon, and goes up to the perinephric tissue, and may even pass up as high as the diaphragm.

*New Operations for the Cure of Non-malignant Strictures of the Rectum.*

BY JOSEPH B. BACON, M. D.

(See page 310.)

DISCUSSION.

Dr. WELLER VAN HOOK: I consider Dr. Bacon's operation with the Murphy button a very valuable contribution to our surgical resources. While the new procedure outlined by Dr. Bacon this evening is an ingenious one, and will probably be useful to some extent, I fear it will not be a permanent success.



In producing a permanent fistula *in ano* the purpose is to produce a tube lined with epithelium which can be turned into and made a part of the rectal wall by a simple after-operation. But two objections must be borne in mind : First, that epidermization of the wound surfaces—after the posterior proctotomy must be preceded by granulation, and this new-formed connective tissue must, like all scar tissue, subsequently contract, diminishing the caliber of the bowel. Second, the reproductive power of epithelial cells is limited, particularly in a septic environment, so that a considerable part of the denuded surface is likely to remain unclothed by epithelium until after scar contraction has progressed to a marked extent. From these considerations I am led to believe that, while this operation will give better results than simple proctotomy, it will not yield permanent cures.

Dr. M. L. HARRIS: My personal experience in the treatment of stricture of the rectum is somewhat limited.

Dr. Bacon's first or high operation is very ingenious, and its advantages in suitable cases would seem to be evident.

Judging from Schede's report on Excision of the Rectum for Non-malignant Stricture, read at the last German Surgical Congress, it would appear that the applicability of Dr. Bacon's operation must be quite limited even in the high strictures.

As is well known, the great majority of these strictures occur in females, all of Schede's fifteen cases operated upon being of that sex. The most of them are likewise old syphilitics who have had repeated attacks of pelvic trouble. Schede found great difficulty in many of these cases on trying to bring down the sigmoid and rectum, owing to old adhesions, tubal disease, and circumscribed pelvic abscess.

These complications would interfere with the application of Dr. Bacon's operation, although, of course, they do not weigh against the advantages of it in suitable cases.

Dr. Bacon's discouraging view of excision does not seem to be borne out by Schede's report, as all of his fifteen cases recovered, showing no immediate mortality, and subsequent retraction did not occur in any of them.

Dr. DANIEL T. NELSON: My experience in treating strictures of the rectum has been limited to three cases. The operations were done about ten years ago. These strictures occurred in females. I performed excision in the first case for an annular stricture in which the mucous membrane was loose both above and below; in other words, the mucous membrane was diseased, producing a stricture. It was the only operation I knew of at that time, and, while it did

not seem at all promising, the results were very satisfactory. In one case there was a stricture afterward, but it was not nearly as tight as the one for which the original operation was performed. The second stricture was greatly relieved, and the patient passed out of my sight. Three or four years afterward I had the opportunity of examining her. It is now eight or ten years since the operation was done, and I understand the result was satisfactory. The other case upon which I operated a second time was not as satisfactory, neither was it as good a case for operation. The stricture was a longer one, probably an inch or more being excised longitudinally along the gut. There was improvement following the first operation as well as the second, but some time afterward she came to me, and it was very evident that she was having more or less discomfort.

Very much depends upon the length and kind of stricture. If the stricture is limited to the mucous membrane, almost any operation, such as simple dilatation, may be sufficient. If deeper tissues are involved, the treatment must be relatively more difficult. Any operation is likely to be partly unsuccessful.

The operation described by Dr. Bacon is an ingenious one, and one from which I should expect excellent results. But I would like to hear further reports of his cases two or three years from now as to the possibility of a diverticulum being formed by the sacculated portion. He may report good caliber and he may have too much caliber. Will the opening contract so that there will not be much difficulty from that source?

He spoke of passing a little seton through. The thought occurred to me while he was speaking of this that I had seen somewhere a statement that some surgeon put in an elastic seton which cut through slowly. May not that be done so that healing may take place while the seton is cutting its way through?

Dr. HENRY P. NEWMAN: I would like to ask if after the high operation there is not a liability to accumulation of fæces, or if the bowel will contract and expel them? Also in carrying a seton into the rectal orifice, high up behind the stricture, is there not great liability to infection and the formation of abscesses in the connective tissue surrounding the rectum? I desire to compliment Dr. Bacon on his very ingenious operation.

Dr. J. T. BINKLEY: I have had the pleasure of observing the work done by Dr. Bacon in this city in several cases. While I was an associate in the Charity Hospital I saw him operate on three cases of stricture of the rectum. He has devised a very unique mechan-

ical operation for the relief of this condition. It seems to me a little remarkable that there is such a strange fascination on the part of some members of the profession to mention the operations which are performed abroad and to fail to recognize the genius and ability of our own talent. I do not remember that Dr. Bacon criticised any other method of procedure. He has simply been working along new lines and has accomplished wonderful results. Dr. Bacon occupies a unique position in this city, in that he is almost the only man who does rectal surgery exclusively ; consequently he has an opportunity of seeing a larger number of cases than other practitioners.

Dr. A. H. FERGUSON : I have had occasion to observe Dr. Bacon's work in operating for strictures of the rectum, and consider both of these operations acquisitions to our surgical procedures in both high and low rectal strictures. For high stricture of the rectum the operation is feasible, and is not extremely difficult to perform. I was present when Dr. Bacon operated on the case he has reported to-night for high stricture. The presence of adhesions in the pelvis, or chronic inflammation of the tubes and ovaries, would be no contraindication for the performance of this operation, for these could be treated first, and the operation for the rectal stricture done subsequently. There is one anatomical condition which might interfere with the performance of the operation—that is, when the sigmoid can not be brought down on account of a short mesentery. This, I can see, would be an insurmountable anatomical obstacle.

The operation which has been presented this evening is not suitable for high, but for low strictures. The operation for high stricture has been already published, and I must accuse Dr. Bacon of repeating himself in this particular. He does not tell us to-night which is the new and which is the old operation. His old operation for high stricture has been tried and found useful. Regarding this new procedure we can offer some observations, and having seen the doctor perform it, I must say that its future is promising. The results here reported are much better than from any other procedure for low strictures that I know of, such as incision or the use of the bougie, electricity, or the elastic ligature.

The objection brought forward by Dr. Van Hook may be somewhat of a barrier to the complete cure in some cases—that is, the old fistulous tract or sinus which has been formed by the seton may cicatrize and become obliterated ; but I think there will be less tendency for the stricture to recur because of the fistulous tract which he makes. It is in the deepest part of the cut that the bulk of granula-

tion tissue springs up after proctotomy, and this is prevented by Bacon's operation.

There is one criticism which I would offer to the operation, and that is the possibility of carrying sepsis behind the stricture in passing the seton. We know that ulceration exists immediately above the stricture in such cases, and in passing a needle through the ulcerated part there is a liability of carrying sepsis in the tract of the seton, and, the silk thread not being sufficient to drain it, an abscess is liable to form around the rectum. I would like to ask Dr. Bacon if abscess has occurred in any of his twelve cases.

Dr. BACON (closing the discussion): I am very much obliged for the free discussion of my paper. It is now fourteen months since I performed the first operation by means of a mucous fistula. It may prove to be a failure, but time alone will decide this.

In regard to Dr. Van Hook's plastic operation for strictures of the rectum, I will say that various plastic operations have been tried and, almost without exception, have been failures. We have above the rectal stricture an ulcerated surface with the most infective material possible flowing over it, and it is absolutely impossible to render the rectal field aseptic by suturing or by a plastic operation. The operation which I have described has given relief in one case for more than a year, but whether it will be permanent or not I do not know. Strictures that are situated high up are rare. Most of them are situated low down—at the junction of the levator-ani muscle with the rectum. We can operate on these strictures in females by my method successfully. I examined anatomically seventeen cadavers at the College of Physicians and Surgeons and Post-graduate Medical School, and, with one or two exceptions, could bring the sigmoid down to the floor of the pelvis. Where the mesentery is long in females there is no reason why the vagina can not be separated from the rectum and the sigmoid brought down to the internal sphincter muscle. Low strictures, if they do not involve the internal sphincter, can not be operated upon by this method. Before this can be done one half of the Murphy button must be modified; it must have a broader base, so that there will be considerable contraction and so that the button can not be pulled into the peritoneal cavity. With this change in the button it can be successfully used in low strictures. If the lower half of the button is sutured in place from below, and if you have the upper half of the button placed in the sigmoid after separation of the rectum from the vagina, you can clasp both halves of the button together by touch. Perfect approximation of the gut

wall is necessary in all cases. It is never safe to close the wound in these cases, and you should therefore insert a Mikulicz drain, with enough gauze packed against the rectal wall to cause adhesion in a few hours. The operation I have described is not restricted to cases of high stricture, and it can be performed in a greater variety of cases than I have spoken of to-night.

Regarding the adhesions which Dr. Ferguson has mentioned, I will say that if you have pyosalpinx, posterior peritoneal adhesions to the uterus, adhesions to the rectum, or any pelvic complication in the female, you can operate on it first; and if your operation has been so prolonged that you do not consider it wise to do both operations at one sitting, the operation for the stricture can be done at a later period. Very few strictures of the rectum are complicated by other pathological conditions. If the sigmoid is loose in the pelvis, or even if it is adherent to other organs, there is no reason why it can not be brought down after the adhesions have been separated.

Regarding subsequent contraction, I believe that in end-to-end approximation of the rectum there will be firm contraction at the end of one year in the average case. In every instance I have been able to observe in which there has been end-to-end approximation of the rectum, stricture has eventually recurred. Last summer a professional friend of mine from Tacoma went to Philadelphia, and while there saw two cases of recurrent stricture of the rectum brought into the clinic. End-to-end approximation had been made with the Murphy button in both cases one year previously. I am quite sure the same thing has happened in all of the cases I have been able to trace. Scar tissue in the rectum will produce these strictures. When I use the Murphy button for lateral approximation I find there is an enormous amount of fibrous tissue in the rectal wall. In one case, after the button had passed at the end of one or two weeks, contraction of the fibrous tissue had occurred to such an extent that I could scarcely introduce my finger into the sigmoid. That is the reason I use a small button. If a larger-sized button is used for anastomosis the fibrous tissue will contract to such a degree that no fæces will pass through the orifice.

With reference to the reports of Schede, as given by Dr. Harris, some of his cases may not have been examined after the first year.

In reply to the remarks of Drs. Newman and Nelson, unless there is dragging and sagging of the sigmoid it is impossible to have accumulation of fæces. But it must be remembered that we are operating on these cases to save life, and should there be an accumulation of



fæces, it can be removed by daily injection and cleansing of the rectum and sigmoid.

So far as my experience and observation go, linear proctotomies have been unsatisfactory.

In reference to sepsis, I think of it every time I pass my ligature. I have had the temperature run up in several cases from  $100^{\circ}$  to  $102^{\circ}$ . There has been no infiltration into the surrounding tissues, and no ischio-rectal abscesses have formed about the strictures. The patients usually have left the hospital at the end of two weeks. Some of them never come back, and I do not know whether they are carrying the setons or not. Some of them changed their residences, and I have not been able to find them.

Official Transactions.

T. J. WATKINS, *Editor*.

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Stated Meeting, January 17, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

*Double Tubo-ovarian Abscess with Papillomata.*

Dr. T. J. WATKINS: This specimen is interesting because it shows the condition of the ovaries and tubes in a patient upon whom I did a vaginal section for pelvic abscess one year ago last June,\* and because both appendages are affected with papillomata. After the opening of the abscess, two drainage-tubes were inserted and remained in place for four weeks. A second accumulation occurred and was drained through the old sinus. The drainage-tubes then remained for nearly six months, when the discharge was so slight that they were removed. The sinus, however, persisting, I dilated, curetted and again drained with two tubes. There was then very little thickening to be felt in the pelvis, and the tubes remained in place for nearly five months. The discharge became quite profuse, and to-day I did a radical operation and removed this specimen by abdominal section. The left appendage is thickened by exudate, contains some serum but no pockets of pus. The surface that was adherent to the posterior surface of the broad ligament, and that communicated with the vaginal sinus, was covered with papillomata. The probable origin of the pelvic abscess

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\* Reported in the *American Journal of Obstetrics*, August, 1895, p. 209. Case, Mrs. C. C.

was a pyosalpinx which became adherent to the posterior surface of the broad ligament, broke into the broad ligament and formed a broad-ligament abscess. This was opened by vaginal section without opening the peritoneal cavity. The right uterine appendage is enlarged somewhat as a result of inflammation and on account of the presence of a number of papillomatous growths. It is a question whether or not this prolonged suppuration had anything to do with the development of the papillomata. The tube on the right side shows the advantage of the technique which I mentioned at a meeting of this Society nearly a year ago.\* The technique consists in sewing the broad ligaments instead of ligating them. By the use of a ligature it would have been impossible to have removed all of the disease, as the uterine portion of the tube was seriously affected.

#### DISCUSSION.

Dr. HENROTIN: You say that the abscess was in the broad ligament and that you did a radical operation?

Dr. WATKINS: Yes, I did a laparotomy to-day.

Dr. HENROTIN: You did not remove the uterus?

Dr. WATKINS: No. After excising the portion of the right tube within the horn of the uterus the rest of the organ seemed normal and was not removed. There is one point I did not mention, and that is this: I expected the adhesions in this case would be extensive and firm; but I have never removed so badly diseased tubes and ovaries as these with less difficulty.

Dr. F. HENROTIN: With reference to Dr. Watkins' case, I will say that I have been doing considerable conservative work in the way of attacking septic foci through the vagina, and, after groping more or less in the dark, I am convinced in regard to one point, which applies very well in this case—namely, that in attacking abscesses and masses of inflammatory material in the pelvis through the vagina, that it is always advisable, and to me it has become a necessity, to enter the abdominal cavity. The gentlemen who frequently discuss this subject, in opening abscesses seem afraid to enter the abdominal cavity. The fact is that it is a matter of great importance, as well as safety to the patient, except in the case of large abscesses with perfectly defined walls, to enter the abdominal cavity. When I have a mass situated on one side, and when I can pass by it, the first thing I do, particularly in my recent cases, is to make an opening posterior to

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\* *American Journal of Obstetrics*, August, 1895.

the uterus, introduce the finger, enter the abdominal cavity and explore the mass from inside this cavity. In a case like the one reported by Dr. Watkins (I do not say this in a spirit of criticism) I should have entered the abdominal cavity, mapped out the condition of the tubes from the inside of this cavity, and then removed the tubes through the vagina, taking away the uterus at the same time, if I thought it necessary. I consider this method an element of safety instead of danger. By entering the abdominal cavity you can remove all the disease, and then, by instituting drainage, the patient is, in my opinion, or at least so far as my experience has gone, almost certain to make a perfect recovery. When you attempt to open the abscess without entering the abdominal cavity you are sometimes liable to have the abscess rupture at some slight point into the peritoneal cavity, and as there is no drainage of the peritoneal cavity established, sepsis develops. I have seen this occur in the case of a colleague, where a pelvic abscess ruptured into the peritoneal cavity, as was subsequently proved by an incision that was made when the woman was almost moribund. Therefore in all of these cases I think it advisable to open the abdominal cavity in order carefully to determine the pathological conditions which are present.

Dr. T. J. WATKINS: In opening a pelvic abscess, which is in the cellular tissue, through the vagina, there is very little danger of entering the peritoneal cavity if one makes the vaginal incision large, and if the section is made carefully. As soon as the finger comes in contact with the peritonæum it is, as a rule, easily detected by its soft, smooth surface. By making an incision over the most prominent portion of the tumor, the operator is certain to directly enter the abscess cavity. If I were going to explore the abdominal cavity I would incise the abscess, thoroughly irrigate, pack with gauze, disinfect the vagina and then open the peritoneal cavity through the vagina. I admit in this case that it was a mistake not to have done a radical operation sooner than I did.

The pelvic abscess in this case, when first opened, contained at least one pint of pus. In cases where the amount of pus present is small I would under no circumstances simply incise the abscesses and drain.

Dr. NICHOLAS SENN exhibited the following specimens illustrative of complicated cases of laparo-hysterectomy:

I. *Myofibroma of the Uterus complicated by Pregnancy*.—The first case was one of multiple myofibroma of the uterus complicated by pregnancy occurring in a woman thirty-five years of age, the mother

of two children. She missed her menstrual period twice, and at the time I made the first examination a positive diagnosis of pregnancy of about two months' duration was made. The size of the uterus and the number of tumors present made it inexpedient to permit pregnancy to progress to its full term. I refrained from inducing an abortion because the position of the uterus, as well as the presence of a number of myofibromata, would have rendered such a procedure exceedingly dangerous. Therefore, at the end of three months I removed the entire uterus through the abdominal route by the extraperitoneal method. I found, as we expected, a three months' pregnancy—a foetus of normal size for that age. The woman made a favorable recovery, with the exception that it was complicated by a thrombophlebitis of a mild character. I have observed this complication in a number of cases of removal of the myomatous route by the extraperitoneal, the intraperitoneal, and the clamp method. It results from the ligation of large veins, which causes thrombus to form at the point of ligation, and the thrombus eventually involves the femoral vein.

II. *Myofibromata of the Uterus complicated by Pregnancy.*—This specimen was removed from a maiden lady who had suffered from myofibromata for a number of years without any serious consequences until about four weeks before the operation, when a physician was called in and found a point of tenderness in the right side, pain, and considerable rise in temperature. This illness lasted for two or three weeks, when it gradually subsided. Besides the enlarged uterus, and a number of myofibromata, I could easily make out by external palpation the presence of a hard mass in the right side and attached to the fundus of the uterus. Considering the history of the case, I had reason to believe that we had to deal with a pathological condition occurring within one of the tumors, in all probability infection, abscess formation, or perhaps even sloughing. The uterus was removed by abdominal section by the extraperitoneal method. The first condition discovered after opening the abdomen was a mass composed of a number of adherent knuckles of small intestine attached to the right side of the uterus. On separating this mass I found a fæcal stone, which at once established the diagnosis in reference to the nature of the complication. After further search, I had no difficulty in detecting a perforated appendix. The appendix was removed in the usual manner; the abscess cavity in which the stone was lodged was thoroughly scraped out, and I aimed to procure an aseptic condition for the walls of the abscess by thorough disinfection and by sewing peritonæum over the abscess cavity. It was my intention to complete the opera-

tion if possible without making provision for drainage. The depression following the recession of the stump after the removal of the uterus was kept open for a number of days, not so much for the purpose of affording drainage as with a view of watching the progress of the case relative to the site of the first part of the operation made for the removal of the appendix, that if suppuration should occur I would have a short route to the abscess cavity. The subsequent course of the case showed the wisdom of making this provision. A few days after the operation there was a slight rise of temperature with signs of local peritonitis above the stump, which showed only too plainly the existence of a limited suppurating focus, which in the course of a few days emptied itself into the space made for draining the pedicle, after which the patient recovered without any further untoward symptoms.

III. *Myofibromata of the Uterus complicated by a Sloughing Submucous Fibroid*.—The operation was performed at the Presbyterian Hospital. The patient was an unmarried woman, about thirty-five years of age, who for years had suffered from menorrhagia to such an extent that she had become quite anæmic. For a number of weeks the attending physician noticed a profuse and foetid vaginal discharge, and for this reason suspected, besides the myofibromata, malignant disease in the cavity of the uterus. I removed the entire uterus by the extra-peritoneal method. You will notice in examining the specimen a number of myofibromata, one of which, a sloughing submucous growth, is attached to the fundus of the uterus. I also found multiple fibroid tumors distributed in the broad ligaments as far down as the cervix. Some of the smaller tumors were enucleated from the cervix. After the removal of the uterus I examined its interior, and found a submucous tumor which had undergone necrosis, which explained the symptoms that had given rise to suspicion of malignant disease. It was from this tumor that the discharge came. It is not always easy to make a positive differential diagnosis in such cases between sloughing intra-uterine myofibroma and malignant disease. On examination of this specimen, some of the gentlemen here perhaps would argue in favor of removing by *morcellement* the sloughing myofibroma, as well as some of the other tumors, that would have been accessible by the vaginal route. That this procedure would not have been unattended by danger becomes evident when you examine the wall of the uterus, which is exceedingly thin over the base of the sloughing tumor. There would have been great danger, in removing this tumor, of perforating the uterus and of infecting the peritoneal cavity; you can also readily see that it would have been impossible, without opening the peritoneal



cavity, to remove the second largest one of the tumors which is attached to the base of the organ.

IV. *Adenofibroma of the Ovary*.—This specimen is perhaps the most interesting one because it represents a very rare form of tumor of the ovary. When we examine the statistics of adenofibroma of the ovary we find these cases are exceedingly rare. The patient was about thirty years of age. I had an opportunity to examine her for the first time when she was pregnant about six months. I had no difficulty then in outlining a tumor occupying the left cornu of the uterus. My impression at the time was that it might be a subserous fibroid, but I advised that pregnancy be permitted to progress, that she should secure efficient aid during her delivery, and that soon after delivery an operation for the removal of the tumor should be performed. I understand from the physician who attended the lady that pregnancy went on without any further complication, and that she was easily delivered without the aid of forceps. About a year afterward, which was a few weeks ago, she entered St. Joseph's Hospital, when I found this tumor on the floor of the pelvis to the left of the uterus. It was removed by abdominal section. It had an extremely short pedicle, and no vestige of a normal ovary was present. We have made sections of it which, under the microscope, show the typical structure of adenofibroma.

#### DISCUSSION.

Dr. HENRY T. BYFORD: I would like to ask Dr. Senn if the thrombophlebitis occurred after the operation upon the pregnant uterus.

Dr. SENN: In this particular case the woman was pregnant three months. I have seen thrombophlebitis in even non-pregnant women a few times, and I am sure I have lost one case of embolism during the course of a thrombophlebitis.

Dr. BYFORD: I have encountered only one case of thrombosis after hysterectomy which came on after the removal of a puerperal uterus. I would raise the question as to whether there is not more danger of the development of this condition after operations during the pregnant and puerperal states than at other times, and whether making the peritoneal cuff operation would not render this accident more liable to occur. It seems to me it is better to tie the broad ligaments in sections whenever possible, and not leave a space which will afford an entrance for infection to take place.

Dr. BYRON ROBINSON: It seems to me it does not make much difference what method is used in the removal of these tumors as

regards the development of thrombophlebitis. I have had thrombophlebitis occur three or four times after removing large, hard, and rigid metritic uteri. In some cases it was very severe, while in others it was comparatively mild. The women suffered much pain. Infection occurs in these operations sometimes and we do not know exactly how. As Dr. Byford has said, infected ligatures or lack of asepsis may be the cause of the trouble.

This afternoon I operated on a woman for multinodular myofibroma of the uterus, in which I tried Dr. Senn's cuff operation. The woman was so weak that I could not complete the operation. She was almost dead. The tumor was a little larger than the one which Dr. Senn has passed around. I quickly pulled the cuff up to the abdominal wall and drained in the manner described by Dr. Senn.

I am very glad Dr. Senn has considered thrombophlebitis, because I have not been able to find the cause of it, but it is undoubtedly the result of infection.

Dr. SENN (closing): I think it is necessary for me to make a few remarks in order to answer the criticisms made by Prof. Byford. In the first place, I do not believe there is any more danger in ligating the veins in the pregnant than in the non-pregnant uterus. Last summer, when I was in Christiania, Norway, I was present at a post-mortem examination made upon a woman found dead, and her death was surrounded by a great deal of mystery. The examination was conducted by the most expert pathologist of that country—Prof. Heiberg. He found within the uterine cavity all of the evidences of a recent abortion, and in examining the sinuses of the uterus, about which so much has been said and written in reference to thrombosis after abortion, he made the positive and unqualified statement, notwithstanding the observations of the older obstetricians and the views that are still held by some that the sinuses become closed by a thrombus after a normal accouchement, that he has never in his whole experience, which is an extensive one, found an aseptic uterus in that condition. He says that immediately after the child is born the uterine sinuses become sealed by minimal thrombus, but under aseptic conditions the remaining contents of the uterine sinuses remain fluid. So, consequently, in every case of thrombophlebitis or sinus phlebitis there is more or less infection.

In reference to the other objection made as to the open treatment of the stump, I prefer to have sepsis, if it should occur, outside rather than inside. I care but little for a limited suppuration if it should happen to occur, but I should be in great fear in case the stump in

the abdominal cavity became septic. With this explanation, I believe I can leave the members of the Society to judge of the merits of the extraperitoneal operation. I have operated by this method in more than fifty cases without a death.

*Fibrosarcoma on the Abdominal Wall.*

Dr. E. C. DUDLEY : I have a specimen which I desire to present. Before operation it was diagnosed by myself and another physician as a solid ovarian tumor. On opening the abdomen it was found to be a subperitoneal growth of the abdominal wall in the right inguinal region, extending from the median line to the ilium. The growth was enucleated without much difficulty. The sac, from which the tumor was taken, was stitched into the wound and packed with gauze. The patient made a perfectly smooth recovery.

The tumor was examined by Dr. Edwards, pathologist to St. Luke's Hospital, and proved to be a fibrosarcoma. The specimen is interesting in that it is uncommon for a fibrosarcoma to develop in the abdominal wall.

The following papers were then read on the subject of *Drainage* :

*The Indications and Modes of Drainage after Abdominal and Vaginal Section.*

BY NICHOLAS SENN, M. D.

(See page 290.)

*Drainage in Peritoneal Surgery.*

BY HENRY T. BYFORD, M. D.

(See page 295.)

*Drainage in Abdominal Section for Pelvic Disease.*

BY T. J. WATKINS, M. D.

(See page 298.)

*The Advantages and Technique of Capillary Abdominal Drainage.*

BY WELLER VAN HOOK, M. D.

(See page 304.)

DISCUSSION.

Dr. A. H. FERGUSON : I shall not include in my remarks drainage of the gall bladder, the kidney, or the retroperitoneal conditions

which sometimes demand drainage. As regards drainage in the neighborhood of the gall bladder, we take advantage of the anatomical pouch which is situated above the transverse colon and to the right of the stomach. In removing any obstruction from the common duct or opening a contracted gall bladder, we take advantage of this pouch, which holds about a pint. If it is thoroughly drained to the seat of operation the patient is comparatively safe and the drainage is efficient. For draining in this locality I prefer to use not merely a gauze drain alone, but gauze and tube combined, the gauze shutting off entrance to the general abdominal cavity, and the drainage-tube going to the seat of operation—as, for instance, to an incision in the common duct.

The use of drainage in appendicitis depends upon the condition of the vermiform appendix at the time of operation. When we operate for recurrent appendicitis and find a number of adhesions, and have a great deal of trouble in separating them, I think there is need for drainage. The indication is the oozing, which we can drain by capillary drainage, and the material which I prefer is the same as I use in amputations—namely, silkworm-gut strands. A few of these strands inserted into the wound, coming out at one or two places, will efficiently drain the seat of the operation after removing the appendix, providing there has been no sepsis at the time of operation. In draining for pus, however, the conditions are quite different. Then we seek the most dependent point, which rule holds good in abdominal surgery as well as in any other part of the body. If I find that an abscess extends upward into the loin, beyond the crest of the ilium, then I hug the anterior superior spine and establish drainage from that part, or possibly through the loin. If we find pus at the seat of the operation, the abdominal cavity is walled off with gauze, the matter sponged out, as pointed out by Dr. Van Hook, which leaves a stump that is septic, and which calls for a large drainage-tube packed around with gauze, in order to wall off the contents of the abdomen. I think it is dangerous practice to use the first packing that you put in for the permanent packing, because it frequently becomes soiled, and then acts as an absorbing material to carry infection into the general peritoneal cavity.

It has been pretty well demonstrated that iodoform is the best producer of granulation tissue that we have, and that granulation tissue is the best fighter Nature has against sepsis; therefore we can not do without iodoform gauze. To use it injudiciously, however, would endanger the patient. I had a case of appendicitis not long

since which illustrated the danger of using too much iodoform gauze. The patient had symptoms of iodoform poisoning, and upon the removal of the iodoform gauze the symptoms of poisoning disappeared.

Gauze drainage alone is not sufficient when pus is present, as it frequently only acts as a barrier and leaves pockets of pus behind that are not drained. The most dependent part where the pus has been should not be packed with gauze, but the drainage-tube should be inserted to that point and the gauze placed immediately around it. I believe in the principle of draining from the most dependent point, whether the drainage be employed a short or long period of time. I therefore believe the vaginal route of drainage is the best. Danger of injury to the bladder, etc., has been pointed out, but the danger that we are more liable to encounter is sepsis from an uncleaned vagina and from a septic uterus. These are the dangers that are invariably pointed out by authorities, and they can be very efficiently eliminated if the surgeon remembers that he should clean that vagina when the patient is asleep; that he should, if necessary, dilate and curette the uterus so as to get the field of operation as aseptic as possible. If he gets the uterus and vagina at the time of the operation as aseptic as he does his hands or the abdomen, vaginal drainage is safer, more efficient, and more surgical than abdominal drainage. If I open the abdomen and find that I have to denude large portions of peritonæum I need not necessarily drain. If, however, I find that a large portion of the peritonæum in the most dependent part of Douglas' pouch has been stripped off, I believe the indication for drainage is clear. This condition often occurs after the removal of ovaries and pus-tubes from Douglas' pouch. If I find in enucleating pus-tubes and diseased ovaries from Douglas' pouch that I have made a clean operation and that I have left an extensive raw surface, there is no necessity for the use of a drainage-tube. If, however, not sufficient peritonæum is present for absorption, I think drainage *per vaginam* is indicated. The drain is only needed for a short time, and one or two dozen strands of silkworm gut passed through Douglas' pouch from the vagina are quite enough if the vagina is filled with iodoform gauze to receive the discharge. If, during an operation, I rupture a pyosalpinx, and if on microscopical examination no streptococci are found, there is not the demand for drainage that there is when they are present. I believe it is a good and safe rule to drain all pus cases, and that the vaginal route is the shortest, safest, and best one. A short, stout, slightly curved glass abdominal drainage-tube, inserted *per vaginam* into Douglas' pouch with iodoform gauze



packed around it, acts beautifully. I should like to see the time come, as has been hoped by Dr. Watkins, when abdominal drainage will be done away with. We have seen considerable trouble, both immediate and remote, result from the abdominal drainage-tube when used through the abdomen. Not infrequently perforation of the bladder and ulceration into the bowel by the pressure of the drainage-tube occur. Sinuses persist, and again our patients return with hernia. If abdominal drainage of the pelvis can be dispensed with and the vaginal drainage substituted, one great step in advance in abdominal surgery will be achieved.

Dr. F. HENROTIN : The time has been so much occupied and the ground so thoroughly gone over, that I have very little to say except to agree with most of the gentlemen who have spoken. However, I can not permit the opportunity to go by without addressing a few words to Dr. Senn. He looked in my direction when he was talking about pelvic abscess and drainage. There are two or three exceptions that I must take with the doctor, and which he surmised, evidently, because he mentioned that somebody would probably disagree with him. One point particularly which the doctor brings in is not germane to the subject or to the discussion of the evening, yet I think it should not go unchallenged. I refer to the severe arraignment which he makes with regard to removing the healthy uterus. I do not think it is customary for gynecologists to remove healthy uteri without sufficient cause. But the presence of numerous causes that give rise to trouble afterward has undoubtedly done much to favor the practice, and I think it will be more frequently done in the future than it has in the past. Any man who has practiced gynecology to the extent of making it a specialty, who sees cases in consultation, who follows them, who is not overburdened with practice, and does not do his work exclusively in the amphitheatres of large colleges and hospitals, recognizes that a large proportion of cases in which only the tubes and ovaries are removed remain uncured and return eventually for subsequent operation. In some cases where the uterus is not removed in conjunction with the ovaries and tubes the patients become neurotics and neurasthenics to a more extreme degree than before, and the reason why the uterus is later removed is because the patient was not cured by the removal of the ovaries and tubes at the first operation. Therefore the subsequent suffering of the patient has led to the removal of what looks like a healthy uterus, and no one can tell that the uterus is healthy at the time of the operation. What is the uterus for, anyway, after the ovaries and tubes are gone ?

Of course, as has been frequently remarked, removing the ovaries before removing the uterus is a great and important question. Conservative surgery should lie in that direction, and I agree with the gentlemen who say that too many women suffer from removal of the tubes and ovaries, and a great deal of work will have to be done in the future in laying down new rules both for the benefit of patients as well as of ourselves. We hear every day of patients suffering from uteri that should have been removed at the time the ovaries and tubes were taken out. The arguments urged against the non-removal of the uterus are largely sentimental. The uterus is a cloaca for the reception of discharges, for giving rise to hæmorrhages, and after surgeons have removed the tubes, in many instances the patients have hæmorrhages or menstrual discharges afterward, complicated with a neurasthenic condition. In many cases when the uterus is left it is an element of harm, and there are various reasons why it should be removed, for frequently the cure is more perfect. Each case is to be judged upon its own basis.

Then Dr. Senn speaks of one-sided disease, or abscesses in the vicinity of the uterus. I do not think any gynæcologist would remove the uterus for one-sided disease. To resort to such a procedure is not only absurd but absolutely criminal.

Coming now to the question of drainage, I agree with Dr. Ferguson. Within the last year I have had occasion in numerous cases to drain the *cul-de-sac* of Douglas after laparotomy, and my results have been extremely satisfactory. In operating for suppurating pelvic disease I simply use ordinary common sense, and if I have an abscess near the anterior surface I drain through an abdominal incision. If, however, it is lower down, I drain through a vaginal incision opening into Douglas' sac, and removing that portion of the appendages which I believe so diseased as to require removal. When both sides call for exsection I remove the uterus in almost all cases. Digital exploration of the pelvis through such an incision will seldom fail to determine the exact and proper interference. I consider it bad surgery, with all due respect to Dr. Senn, to introduce an exploring needle into abscesses toward the posterior or deeper segments of the pelvis. I believe the proper method of procedure is to make an incision either with a Paquelin or with the finger, in order to get in and feel and see what is the trouble. The opening should be made sufficiently large. It does not make any difference whether the doctor has had one or two, or possibly five cases which did well after making a small opening with the needle, or a small puncture with the

knife ; he still does not know what is behind this abscess. There may be no other abscesses there. I have known of two cases within the last two years and a half that were drained through the vagina after this manner, and the patients died. In one patient the post-mortem examination disclosed another abscess behind which had not been found and had burst into the abdominal cavity. The patient was a very influential and estimable lady. I do not believe in cutting for abscess and draining through the vagina by simply going in with a Paquelin, a knife, a needle, or anything else, and finding pus and being satisfied with this unless the indications are plain that it is the only abscess. We do get abscesses in the cellular tissue, the broad ligament, that are large in size, and which by bimanual palpation we can recognize, through which, if we make a large opening, we can introduce a finger and determine the size of the cavity and recognize at once that it constitutes the entire disease. Large phlegmons of the broad ligament are of this class. In such cases it is proper to use a drainage-tube. You know the limitations of the disease and have but one large cavity. But in an impacted uterus with infiltrated cellular tissue around it, with adhesion and complete firmness, when you make a cut or puncture and get pus, you do not know whether you have all the pus or not, and frequently you do not. The cavity should be efficiently drained in such cases, but bimanual palpation will frequently make you recognize masses beyond.

Only a few weeks ago I went to a distant city to see the wife of a physician. She was treated by three different physicians. One made a very small incision on one side of the uterus, explored the cavity a little, then introduced a piece of gauze for drainage, and the woman seemed comfortable for that day. The second gentleman made a little larger opening in the same direction and evacuated a little more pus. A few days thereafter another incision was made on the other side of the uterus, and pus was found there, the cavity being packed with gauze. By this time the woman was vomiting constantly. The operations of these physicians occupied three or four weeks, and the patient was anæsthetized three times. I made an opening behind the uterus sufficiently large to admit two fingers, reached two larger cavities situated on top of the uterus, swept my fingers from side to side, and packed the cavity with sufficient gauze to establish thorough drainage. Low as the patient was, she recovered. This case illustrates the dissatisfaction of making small punctures for uterine abscesses. The first pus you reach is not satisfactory. Make sure there is nothing beyond.

I want to say that in vaginal hysterectomy I have been using gauze which is boiled in glycerin, as shown to me by Jacobs when he was over here, bringing it up to a certain point, and it makes a satisfactory drain in cases of vaginal hysterectomy. In these cases a most unpleasant feature is the foul odor of the discharge from sloughing stumps. In my last two or three cases I have taken pains, when I had the clamps in position and could reach the parts, to get the tissue within the clamp, and with the Paquelin cautery sear the whole surface. Instead of cutting with scissors, I do so with the Paquelin. In using a douche afterward, I have used several times a weak solution of formalin, which takes away a great deal of the odor.

Dr. Senn says he has known of three cases of vaginal hysterectomy that died from hæmorrhage following the use of clamps. It has been a matter of fear to me, but I have had no trouble so far. I can understand that the perfection of instruments is a matter of the greatest importance in our operative work; that it takes time to develop these things, and our vaginal work is really in its infancy. I believe most emphatically that the very best results can and will be gained by operating through a sufficiently large vaginal opening, and likewise establishing drainage *via* this route.

Dr. BYRON ROBINSON: One surgeon reports a thousand cases in which he has employed drainage; another does not use drainage, and each one claims equally good results. Drainage, as everybody knows, is the safety-valve of abdominal surgical operations. My observation during the last ten years has been that the man who neglects drainage in some cases does not sleep so well. If the surgeon carefully watches his vaginal or abdominal hysterectomies which he drains, he will find that the skin is more moist, the kidneys secrete more freely, and the convalescence is smoother than in cases treated without drainage. The gas in the intestines is not so great and the depression of the nervous system is not so marked when drainage is instituted as when it is not used. I have done secondary cœliotomies a number of times, and I have observed that worse adhesions occurred without drainage than with it.

Tait's saying—"When in doubt, drain"—is a good suggestion.

I wish to say in regard to the removal of the uterus along with the ovaries and tubes, that I am not in accord with Dr. Senn, for the reason that I have repeatedly had women who had had their uterine appendages removed come to me to have their uterus taken away. On examining them I have detected a hard, rigid, metritic uterus. You all know what that condition means. I have done probably sixty-five

hysterectomies in cases where the appendages had been removed. The uterus should have been removed in these cases when their diseased ovaries and tubes were excised. There are two kinds of metritic uteri: one results in hypertrophy, the other in atrophy. I do not believe gynecologists will remove small sclerotic uteri unless it is absolutely necessary. My experience in the last two years and a half has taught me that the uterus should come out in many cases where it is now permitted to remain. In previous years I have fought against the removal of these hard, rigid, metritic uteri, but knowing now how much women suffer and how their nervous systems are affected by this organ being left, I look upon its removal as a justifiable procedure.

I think Mr. Tait was the first to use circular drainage. He passes a rubber tube through the vagina and up through the abdomen. I have used it with good results.

I can not agree with Dr. Senn in reference to the drainage of a pyosalpinx, because I have had bad results from an incomplete operation in these cases. When I operate for pyosalpinx it is my aim to completely remove it.

Dr. FRANKLIN H. MARTIN: I feel to-night very much as though we have had a "field day" from the general surgeons, and the result is that the question is not, as Dr. Robinson states, between drainage or no drainage, but between capillary and tubular drainage. The papers of Drs. Byford and Senn incline strongly in opposite directions; but Dr. Byford seemed to speak apologetically when he referred to using a small tubular drain. I wish to support to a certain extent the tubular-drain side of the discussion. I think the question of drainage is more one of individual experience than methods. I think that one surgeon can drain by means of a tubular drain with success if that is his customary way, while another surgeon of equal talent, especially if he is a general surgeon, can use the so-called capillary drain, and succeed equally as well and naturally better than by the other method with which he has had no experience. I believe that the tube is the proper drain in abdominal surgery, especially where we are dealing with the general peritoneal cavity, and not cavities that are walled off, or abscesses which we are unable to enucleate. But taking it all in all, abdominal drainage can be efficiently done by means of a tubal drain. I drain for hæmorrhage as well as for septic conditions. When hæmorrhage is so severe that a tubular drain will not check it, it is too severe for any drainage; the surgery is incomplete. When you resort to tubular drainage you can see what is being



removed. We have seen by the excellent papers presented on the other side that the capillary action by gauze is frequently imperfect; the drainage by gauze must be perfect in order to do efficient capillary work; therefore we do not always know when we use a capillary drain that we are getting efficient drainage. On the other hand, when we use a tubal drain and put in a sucker every two hours, we know what we are getting out. I am, on that account, a firm believer in tubal drainage in the general abdominal cavity, and I believe that it acts perfectly. I believe the tubal drain is just as efficient in hæmorrhage, and even more so than the packing with gauze. If the peritoneal cavity is kept dry by means of a tubal drain, the capillaries will soon stop bleeding. If the hæmorrhage is allowed to accumulate, the oozing will not cease, as the vessels are being constantly bathed. I do not like the condemnation of the tubal drain on the basis that it produces hernia and fistula, and that it prevents the proper healing of the wound. I never use a drainage-tube larger than an ordinary lead pencil, and do not leave it longer than seventy-two hours, and always expect the wound to close perfectly at the end of that time. I have only had one or two cases of hernia following my operations, and in neither of them was it the cause of drainage, as drainage was not used. I believe that hernia is more liable to occur when gauze is used than when a tube is used.

As far as vaginal drainage is concerned, I agree with the gentlemen who have spoken, and in my vaginal hysterectomies I always use a capillary drain through the vagina. There is no question about the necessity of drainage in a great many cases, and the injunction of Tait to drain when in doubt is one of the best things he has ever said, and I always drain when I am in doubt. Wherever there is the slightest chance for two drachms of blood to accumulate within the abdomen in six or more hours, I drain. I drained before a class this afternoon in a case where the abdomen was exposed for three quarters of an hour, but where there was not one drop of blood to be seen. I apologized to the class for draining in this case. I was not absolutely certain that there would not be a little oozing. The woman was weak, and, as in such cases, the resistance to infection is very low, this fact made me feel that I owed it to that woman to drain.

Dr. FRANK A. STAHL: It seems to me that the principle of all drainage should be (1) to thoroughly open the cavity to be drained, so that the foreign material will all escape; (2) to encourage natural contraction of the parts where the foreign material is. By doing the former you encourage the latter. An ideal material for drainage is

one that will remove the greatest quantity of pus or other material in the least amount of time. It is customary to use gauze for capillary drainage, as was brought out by Dr. Van Hook, who went into the physics of the subject. Gauze acts not only as a siphon, but as you increase the arm of gauze which hangs out of the tube you increase the traction upon the fluid. Iodoform absorbent cotton makes a very successful drain. I find that I can get efficient drainage by the use of strips of absorbent cotton; it causes less irritation than gauze, and does not act as a plug as does gauze. Experiments show that absorbent cotton is superior to either gauze or wicking as a siphon. After using absorbent cotton strips as a drain I have never found any accumulations after their removal.

The President announced that the discussion would be continued at the next meeting.

Official Transactions.

T. J. WATKINS, M. D.,  
*Editor of the Society.*

## OBSTETRICS.

### GERMANY.

#### *Intermediate Products of Metabolism as a Cause of Eclampsia.* *(Preliminary Paper)*

W. H. MASSIN (*Cent. f. Gyn.*, October 19, 1895) says that his researches into the pathology of eclampsia, which were published only in Russian journals in the year 1892, appear to have escaped the notice of Ludwig and Savor in their studies of the same subject, published in the *Monatsschrift für Geburtshülfe und Gynäkologie*, sec. 5, 1895; also to have escaped the notice of Prof. Chrobak, who, in his inaugural address before the last Congress of the German Gynæcological Society, in reviewing the experiments of Ludwig and Savor, attributes to intermediate products of metabolism, probably carbamic acid, the production of eclampsia. Massin, as first assistant to Prof. Pawlon, of the physiological section of the Imperial Institute for Experimental Medicine at St. Petersburg, witnessed for three years (1891 to 1893) physiological experiments in artificial poisoning of animals possessing Eck's fistulæ of the portal vein and the vena cava; in other words, animals with diminished hepatic function. The chemical part

of this work was treated by Nencki and Hahn, was noticed by Ludwig and Savor and seems to have formed the basis of their deductions. These experiments impressed Massin strongly with the importance of the liver as an oxidizing agent and suggested to him its probable rôle in the production of eclampsia. A series of microscopical examinations of the organs of eclamptic victims confirmed his views.

Physiological experiments show—

*First*, the importance of normal hepatic function for the proper oxidation of animal products.

*Second*, the physiological and toxicological significance of carbamic acid, which is a product of incomplete oxidation of nitrogenous substances and causes symptoms of intoxication similar to eclampsia.

Microscopical researches show—

*First*, that the parenchyma of the liver is subject to serious pathological changes, which must disturb its physiological functions.

*Second*, that other parenchymatous organs, as the kidneys, show changes indicative of a severe general intoxication. As a result of these observations he reached the conclusion that eclampsia depends on a disturbance in the ordinary oxidation processes of pregnant women and on a consecutive intoxication by the products of defective oxidation, probably by carbamic acid. But a careful analysis of the urine of eclamptic women, made by Hahn, of Berlin, in the laboratory of Prof. Nencki, failed to show any increase in carbamic acid over normal urine. After these analyses, Massin turned his attention to other products of defective oxidation, especially leucomaines. Prof. Poehl made a series of quantitative analyses of the urine of eleven eclamptic women taken before and after eclamptic attacks, which showed—

*First*, that there exists an auto-intoxication in eclampsia.

*Second*, that the oxidation of nitrogenous substances in eclamptic women, measured by the proportion of the total nitrogen in the urine to the nitrogen of the urea, is considerably diminished.

*Third*, that the quantity of the leucomaines in the urine previous to an attack is increased from two and a half to thirteen times above the normal, but decreases rapidly after the attack. These results justify the assumption that eclampsia is an intoxication from leucomaines or, in other words, a leucomainæmia. There is reason to believe that leucomaines are produced more abundantly during pregnancy than at other times. If the liver, one of whose functions is to destroy the leucomaines, is unable to perform this oxidizing function, a general overwhelming of the system with leucomaines may

occur, producing clonic and tonic spasms and inducing acute disease of the parenchymatous organs, as the liver and kidneys. Disease of the liver lowers its already diminished function, and the total neurosis of the epithelium in the cortical substance of the kidneys renders the elimination of the poison impossible.

Poehl also found that the urine of pregnant women, not eclamptic, indicated deficient oxidation, giving nitrogenous bodies and leucomaines in large quantities. Why, then, is eclampsia so rare? Prof. Pawlon found that animals with Eck's fistulæ of the portal vein and vena cava might withstand the toxic effects of carbamic acid until some psychic irritation was produced, when carbamic-acid intoxication followed. By analogy, pregnant women may tolerate large quantities of leucomaines in their general circulation without toxic effects until some irritation of the nervous system occurs, such as severe and prolonged labor pains or great anxiety. These conditions are met with most frequently in primiparæ and so also is eclampsia.

*The Significance of Gonorrhœa in Pregnancy, Delivery and the Puerperium.*

H. FEHLING (before the Society of Physicians of Halle, *Munch. med. Woch.*, December, 1895) emphasized the great importance of an old gonorrhœa in the male as a frequent cause of sterility, as shown by the teaching of Noeggerath on the recent investigations of Wertheim. Ten to fifteen per cent. of all matrimonies are sterile; of these, over fifty per cent. are due to gonorrhœa in the husband. And even Glinder's estimate of 71.3 per cent. of sterility due to gonorrhœa is too low. Aspermia or azoösporia without gonorrhœal basis is exceedingly rare. We generally obtain a history of gonorrhœal epididymitis, and even when all catarrhal symptoms have subsided we fail to find spermatozoa in the semen. These cases are practically hopeless, unless some genius shall arise who, by surgical measures, can render the vas deferens permeable. Greater attention should be paid to the prophylaxis of epididymitis in the treatment of urethral gonorrhœa.

*Sterility in the Female due to Gonorrhœal Infection.*—In rare cases with a comparatively recent gonorrhœa of the male it is possible for conception to occur quite early after marriage, before infection takes place. In still rarer cases, especially in the unmarried, gonorrhœal infection may not occur until the second or third month of gestation. According to Wertheim, a man may possess a hidden gonorrhœa,

there being but a few virulent gonococci in his urethra ; during matrimonial intercourse these cocci reach the genital mucous membrane of the wife and find there, favored by the multiplied relations of the honeymoon, a most propitious field for propagation with increased virulency ; these in turn reinfect the husband with an acute blennorrhœa ; thus the happy (?) pair are mutually infected. The more recent the gonorrhœa of the husband the greater the danger is of infection for the wife. Exceptions, however, occur ; pregnancy may result with a recent gonorrhœa in the husband.

*The Influence of Gonorrhœa on Pregnancy, whether occurring simultaneously with Conception or later on in Gestation.*—Urethritis is seldom the only localization of gonorrhœa. It is more frequent in non-pregnant women. When it does occur in pregnancy it is very benign, often subsiding spontaneously. Vulvitis is more frequent and in uncleanly persons may be severe. Acute Bartholinitis is rare during pregnancy. Condylomata acuminata is relatively rare, usually found on the vulva, less often in the vagina. Vaginitis is more common than admitted by some. Vaginitis punctata, resembling the climacteric form, is met with most frequently. Not every vaginitis met with during pregnancy should be considered gonorrhœal. In gonorrhœal vaginitis of pregnancy the thin, purulent secretion is abundant and excoriates both the vulva and adjoining skin.

Erosions of the cervix may occur, with hypertrophy of the glands and connective tissue. Gonorrhœal catarrh of the cervix is not rare but, as in the majority of cases the infection occurs after conception, the infection of the cervical canal must come from below. According to Walthard, gonococci, like other bacteria from without, are rendered innocuous by leucocytes in the middle and lower portion of the cervical canal. The upper region remains free from germs if these are not carelessly carried there by the fingers or instruments. Wertheim's recent investigations of gonorrhœal endometritis by the examination of recently extirpated uteri with gonorrhœal inflammation of the appendages showed gonococci in the uterine secretions ; this is principally a question of interstitial endometritis complicated by the glandular form. Such an endometritis may account for abortion with gonorrhœal ophthalmia of infants. Metritis of the same nature may complicate the endometritis ; if so, it is doubtful that pregnancy can proceed to term. It is still less likely that conception could take place with gonorrhœal metritis. Gonorrhœal perimetritis is proved ; infection occurring with conception, or soon after, in the oviducts, the consequent catarrh may reach the peritonæum later on in pregnancy



by the upward crowding of the uterus and cause a peri-oöphoritis with localized adhesions.

*Treatment.*—Urethritis seldom demands special treatment; the free drinking of alkaline waters is generally all that is required. In obstinate cases iodoform pencils may be introduced into the urethra. Vaginitis should not be treated too heroically; douchings will not reach all the recesses of the vaginal convolutions and may induce abortion. Krönig and Menze think it unwise to lower the normal germicidal power of the mucous membrane by antiseptic douches. Douching with normal solutions of chloride of sodium and painting the vaginal membrane, by means of a Ferguson's cylindrical speculum, with a five- to ten-per-cent. solution of nitrate of silver, or dusting it with iodoform, is sufficient. For vulvitis, compresses of lead water may be used. Condylomata should not be removed until after delivery, as they are liable to return. Excision and the actual cautery are the best measures. During labor gonorrhœal secretions should be cleansed away, and antiseptic douches employed. The newborn infant's eyes should be immediately cleansed and a few drops of a two-per-cent. solution of nitrate of silver instilled. Gonorrhœal stomatitis is very rare but may occur in face presentations and should be treated by weak solutions of nitrate of silver and boric acid.

Much doubt exists as to gonorrhœal endometritis of the puerperium independent of septic infection as claimed to occur by Krönig. Puerperal gonorrhœal salpingitis, denied by Fritsch, does occur, according to Fehling who saw four cases. Virulent gonococci existed in the oviducts at the time of delivery and were forced into the peritoneal cavity by uterine contractions. As the ampulla is fixed at the linear innominata at delivery, the localized peritonitis occurs at that point. The symptoms are those of pelvic peritonitis. There is a tendency to localization and encapsulation, with frequent relapses and chronic pelvic peritonitis. Sanger, Wertheim, and Zweifel have shown that ovarian abscess during the puerperium may be of gonorrhœal origin. Sarfert has found diplococci in pus from mastitis, but the presence of gonococci have not been established by the culture method.

(T. W. CLEAVELAND, New York.)

## THE STATUS OF GYNÆCOLOGY ABROAD.

## GREAT BRITAIN.

*Therapeutics of the Sixteenth Century.*

Dr. W. G. A. ROBERTSON (*Edinburgh Med. Jour.*, December, 1895) shows that gynæcology was not unknown in the sixteenth century, and that the Reverend Mayster described what is doubtless the forerunner of the much-used glycerin tampon of to-day. That the postural treatment was recognized as of value in promoting reposition of the uterus is also indicated in the following :

To heale a woman that hath the matrice out of her natural place : Take a flint stone that hath been alwaies in the earth and not taken the aire, and put it in some basket covered in a great fire and when it is verie hotte put it in a little tubbe or barrell and wet it with vinegar cast uppon it and cause the woman to stand over it to receive the smoake or parfume of it and then let her goe to bed. Ye shal after this take the juice of Rue and make a little rounde ball of cotton, whereunto ye shall tie a-threede, and then dippe the saied ball in the saied juice of Rue, and put it into the mouth of the Matrice, the whiche will incontinent take the ball and drawe it in, and then it will return into his natural place again. But you must binde and tie the ball sure and well, least peradventure it should remaine within. After this an ointment is to be applied to the reynes of her backe, and laye hotte towe upon it, and then swaddle her as women do young infantes. And so she must be laied in her bed with her bellie upwarde and her heade lower than her buttockes. This must ye doe from night to night three times and she shall be healed. She must also eate hot things in operation, as pigeons and hennes with spices and other like things.

## GERMANY.

*Gonorrhœal Metritis.*

MAX MADLENER (*Cent. für Gyn.*, December 14, 1895) states that great progress has been made in our knowledge of gonorrhœa in the female during the past two years. When the gonococcus was first demonstrated it was considered merely as a mucous parasite, but now it has been proved that the bearer of gonorrhœal infection is also

able to penetrate into the deeper layers of tissue. Wertheim says : "All the inflammatory products in the tubes and ovaries, in the peritonæum and in the broad ligament, occurring as a sequel to gonorrhœa, are caused by the gonococcus."

The gonococcus has been demonstrated in the endometrium of the corpus and cervix but not in the muscular tissue. The symptoms of metritis, such as sensitiveness to pressure and general enlargement, are often found as a sequel to gonorrhœa. Whether this is caused by the gonococcus has not yet been determined. The author examined many sections taken from a uterus that was removed *per vaginam*. The patient claimed to have been infected three months previous to the operation. Gonococci were found in the cervical secretion. The uterus was enlarged and was very sensitive to pressure. The uterine appendages were much enlarged and very sensitive to pressure. These proved to be pus tubes. No gonococci were found in the muscular tissue. In the second specimen the author was more successful and believes that he has demonstrated the presence of gonococci among the muscular fibers. The specimens were taken from a uterus that had been removed seven weeks after confinement. Three weeks before delivery a profuse purulent discharge appeared. The labor and puerperium appeared to be normal. She arose on the seventh day and complained of being very weak but had no fever. Five weeks later she was attacked with violent pains in the abdomen. These became so intense that the patient sought her bed and had to be carried to the hospital. Vaginal hysterectomy was performed. The uterus was large and infiltrated with pus; pyosalpinx was found on one side and a purulent salpingitis on the other. After taking many sections from the uterus the following results were obtained: Forms clearly showing diplococci and corresponding in size to the gonococci were found in sections taken longitudinally from the fundus. The cocci were found in pairs, usually between the cells of inflammatory exudate and sometimes between the muscle cells. The cocci were found in sections taken from the anterior and posterior walls of the body and from the cervix. The author thinks that the failure to find the gonococci in the other cases was due to the length of time that expired after inspection before the examination was made. The gonococci remain for years in the mucous membrane and can be demonstrated there, but the uterine muscular tissue is not a favorable soil for a prolonged stay or for propagation. They either perish there or pass through the uterine wall to the peritonæum. The author believes that many uterine abscesses are caused by the gonococci.

Many of these abscesses followed abortion, and many did not show symptoms of infection by staphylococci or streptococci, but occurred during the latter part of the puerperium—indeed, post-puerperal infection has many characteristics of gonorrhœa.

In conclusion, Neisser's gonococcus is capable of penetrating the muscular tissue from the endometrium and there causing inflammation. This inflammation may proceed to the formation of abscesses. This occurs most frequently in puerperal cases. The gonococcus soon disappears from the muscular tissue either by destruction or by emigration. By invasion of the serous membrane from the endometrium the peritonæum may be infected without any tubal disease. In this way perimetritis in gonorrhœa may be explained.

*Double Uterus, with Repeated Hæmorrhages from One Uterus and Pregnancy in the Other.*

WENDLING (*Wiener klin. Woch.*, No. 2, 1896) reports a case of the above-named anomaly. This condition is produced by a separation of the bundles of Müller's fibers. Two uteri are produced; they may be rudimentary or fully developed. Two separate vaginæ may exist or the vagina may be normal. It sometimes happens that the second vagina terminates high up within the other or low down without an opening (atresia hymenalis).

A double os uteri may generally be accepted as a sign of divided uterus. It is obvious that by occlusion of the os uteri of one side or of the vagina, hæmatometra, hydrometra, pyometra or pyocolpos, with their sequelæ, may occur.

The author first saw the patient, a peasant, twenty years of age, during the summer of 1893. She appeared to be pregnant. The abdominal enlargement corresponded to the seventh month of gestation. The girl stated that she had menstruated regularly since her sixteenth year. The flow had always been profuse. Her abdomen had gradually increased during the past year. She complained of pain in the sacral region and of strangury. There had been occasional vomiting. She absolutely denied having had sexual intercourse. The external genitals appeared absolutely normal and presented a hymen intact with small foramen. Upon introducing the finger into the vagina a mass was felt which nearly occluded the vagina. The cervix was found nearly above the symphysis. Rectal examination revealed nothing additional. A diagnosis of ovarian cyst was made and operation proposed and refused. Four weeks later she appeared upon the street in perfect health. She stated that one night she had

felt as though something had burst within her. This was accompanied by a gush of dark-brown, thick fluid. This flow was profuse for two days and at the end of that time the tumor had entirely disappeared. Soon after this she married.

The author next saw the patient when she was in labor. She had then been in labor for five hours. She had felt no foetal movements for three days. The liquor amnii had escaped with the first labor pains. The pains were very severe and seemed to be almost continuous.

The abdomen was enormously distended. The tumor, which felt like the gravid uterus, was to the right and pushed up under the diaphragm. The axis of the tumor was downward and to the right side. In the left iliac region was felt another tumor which seemed to fill the pelvis. Uterine *souffle* was heard over the large tumor but no foetal heart sound. In the vagina a tense blue mass was seen; this completely filled the vagina. High up above the pubic arch the os was found. Dilatation was nearly complete. The tumor in the vagina was then incised and an enormous quantity of dark-green, thick fluid escaped from the vagina. The tumor became very much smaller, and the labor pains diminished and finally ceased entirely. The os uteri was dilated and a foot presented. By rubbing the uterus the pain began again and she was delivered of a dead foetus, normal in size but disfigured by a badly cleft palate. After the placenta had been expressed, this uterus contracted normally and lay in the left side of the pelvis, but a large amount of blood escaped with the fluid from the other uterus and the patient showed serious symptoms of hæmorrhage. The puerperium was uneventful. Six weeks later an examination was made and the following condition noted: The upper part of the vagina was divided by a thin sæptum. The two uteri could be clearly demonstrated. The one that had borne the child was normal in regard to size and shape. The other uterus seemed to branch from this one. Its fundus was on a lower plane and of course smaller. The two cervixes could be felt in the vagina separated by the sæptum. At the time of writing this paper the patient is again pregnant in the same uterus. The other uterus is behind the impregnated one and is in the position of retroversion.

(G. H. MALLETT, New York.)



## PÆDIATRICS.

## AMERICAN.

*A Case of Papular Erythema following Vaccination.*

GEORGE HENRY FOX (*Med. News*, January 4, 1896) intimates that while it is possible to convey syphilis, leprosy, septicæmia and tuberculosis by carelessness in vaccination, the well-authenticated instances where even so common a disease as syphilis has been conveyed by vaccination are very few. Bad results are due either to injury or irritation of the vaccinated part, infection of pustule or an idiosyncrasy, which leads to the development of a rash, as by quinine, antipyrine, etc., and not to "bad virus," as usually attributed. Dermatitis, cellulitis or ulceration may follow irritation of the vesicle.

Infection of vesicle or pustule may induce erysipelas, furunculi and contagious impetigo. The systemic reaction after vaccination may induce eruptions of varying types. These may appear before the development of the vesicle but are most frequently met with when this is at its height. These eruptions present no specific features which would indicate their vaccinal origin. They may be erythematous, urticarial, purpuric, vesicular or bulbous in character.

*Case.*—A child two years of age. The eruption had appeared a week after vaccination. The arm presented a well-developed vaccine pustule, drying into a blackish crust. No indication of injury or irritation to pustule. The eruption had appeared first upon the vaccinated arm and had rapidly become general. The face was swollen and spotted with a few erythematous patches. The trunk was nearly covered with a bright-red erythematous papular eruption. The lesions consisted of pinhead-sized follicular papules, mostly aggregated in small, rounded patches. Numerous papules upon the palms and few upon the soles. Temperature,  $103.2^{\circ}$ . The treatment was calomel to move the bowels and local application of zinc oxide in limewater. The eruption faded rapidly and the vaccine crust dried as though no rash had occurred.

*Notes on an Epidemic of Enteric Fever among Children.*

A. K. BOND (*Virginia Med. Monthly*, January, 1896) presents the records of twelve cases of enteric fever among children. They show the various types of the disease, the possible causes and useful methods of treatment. The conclusions that the author arrives at are as follows :

That children often bear high temperatures well in this disease.

That full baths should be very carefully and judiciously applied, if at all.

That the disease in children under five years of age may easily be mistaken for other digestive disorders or for bronchitis.

That albuminuria coming on during the fever does not necessarily lessen the chances of recovery.

That gangrene of the mouth, if superficial, may in some cases be cured by permanganate-of-potassium washes, without caustics.

That digestion ought throughout the disease to be aided by pepsin or pepsin and acid.

That great care ought to be used for the prevention of accumulations of ill-digested, foul and irritating food residues in the bowels at any time from the inception of the disease far into convalescence.

At the very beginning the bowels should be thoroughly cleaned out. Later, if there is not depressing diarrhœa, occasional one-tenth-grain doses of calomel should be used. If there is constipation, small doses of Epsom salts should be regularly administered as described.

#### *A Case of Congenital Rickets with Recovery.*

VICTOR STAFFORD (*Pædiatrics*, January 15, 1896) describes the case of a child of Italian parentage, four years and a half old. She had been deformed and sickly since birth and had failed markedly since the mother had stopped nursing her. Appearances typically rhachitic, examination showing old fractures of both clavicles and both humeri, together with marked curvatures in all the long bones. Physically and mentally she would pass for a child of three years. The treatment was proper nourishment, cod-liver oil, phosphorus and iron. Improvement was slow until she was transferred to the Seaside Hospital, where she received the benefit of outdoor air there or on the Floating Hospital. She continued to improve, in five months began to walk and is now fairly intelligent, though not yet up to the average child of her age.

The family history did not contain any peculiar features, having three other perfectly healthy children. The changes involved in the immigration of Italians to this climate would seem to be factors in the production of the rhachitic tendency of their children. The diet seems to be responsible for it, as the children do not eat everything upon the table as is the case with other nationalities. Meat is believed to be injurious to children and hunger is overcome with sweets, macaroni and fruits. It is often necessary to teach them that milk and broths

are used as food, yet they soon get used to them and their rhachitic conditions yield promptly to treatment but frequently suffer a relapse on going back to the old diet.

GERMANY.

*Oxycyanide of Mercury in the Treatment of Ophthalmia Neonatorum.*

VON SICHERER (*Münch. med. Wochen.*, December 3, 1895) recommends the use of oxycyanide of mercury in the treatment of ophthalmia neonatorum. The advantages of this drug were first brought to the attention of ophthalmologists by Schlösser in 1893. at the meeting of the Ophthalmological Society in Heidelberg. Schlösser demonstrated that this preparation presented antiseptic properties equal to those of the bichloride of mercury but caused much less local irritation and much less power of coagulating the albumin than the corrosive sublimate.

Generally in acute affections of the conjunctiva one- or two-per-cent. solutions are used. In ophthalmia neonatorum a solution of one to five hundred has proved most effectual, and has been used exclusively in this affection in the University clinic for several years past. The application is extremely simple: After eversion of the lids they are rinsed thoroughly with this solution, and in such a manner that every fold of the conjunctiva is freed from the secretions. This should be done daily. Instruction should be given for the constant use of ice compresses. The nurse should be cautioned against removing the secretion, for, unless the greatest care is exercised, injury is done to the superficial layers of the cornea with subsequent ulceration. If the cornea is not already affected when this treatment is begun, a favorable termination can be absolutely guaranteed, which is by no means the case with other methods of treatment. Even when slight infiltrations of the cornea exist, by this means they can usually be made to subside and it is only in extensive ulcerations and in prolapsus of the iris that this and other means of treatment are of no avail.

If the results of the ordinary method of treating this affection—namely, brushing with a two-per-cent. solution of nitrate of silver and neutralizing with a solution of sodium chloride—be compared with those obtained by simply rinsing with the oxycyanide, the preference would be unhesitatingly given to the latter method.

An efficient remedy for combating a disease which causes forty-one per cent. of the cases of total blindness should be welcomed by all.

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THE QUESTION OF PUERPERAL SELF-INFECTION.\*

BY CHARLES JEWETT, M. D.

Puerperal self-infection, in the sense in which the term has come to be used, refers to infection from bacterial organisms primarily present in the genital tract. It is contradistinguished from contact infection in which the causative agent is conveyed to the patient during the lying-in period. The conception, however, is an unfortunate one since all infection is primarily from without. It finds no place in surgery, and it is no more essential in obstetrics. Ovarian abscess, pus-tubes, suppuration of the vulvo-vaginal glands, or other pus-producing disease pre-existing in the pelvis may be the source of puerperal fever; but the patient in such cases is already an infected patient, and the puerperal disorder is but the extension of the local septic process. Fortunately, with the exception of vaginitis, the concurrence of parturition and pelvic suppuration is rare. Even the disease-producing bacteria of the vagina are exotics. The term autoinfection, therefore, if used at all, has no proper application in its etymological sense.

The subject assigned me for discussion would be better stated The Relation of Pus-producing Germs Primarily Present in the Body of the Pregnant Woman to Childbed Sepsis. The important practical part of the question concerns the vaginal secretion, since upon this hinges moot points in treatment, and to this my remarks will be confined. Is the average lying-in woman liable to infection from the

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\* Read before the New York State Medical Society, January 28, 1896.

bacterial contents of the vagina? It would seem primarily that she is. The vagina, like other open body cavities, is exposed to the invasion of pathogenic germs. The gynæcological surgeon treats the vaginal surface as he does the skin; he prepares the field with no less care here than in abdominal operations. Must the obstetrician pursue a similar practice?

The bacteriological literature bearing on the relation of the vaginal secretion to puerperal sepsis is a voluminous one. The views and findings of different observers are conflicting. Essentially, three opinions prevail:

1. That the vaginal secretion may infect whether healthy or diseased.
2. That only pathological secretions can infect.
3. That the vaginal bacteria, either in health or disease, have practically no part in the ætiology of childbed fever.

Of extreme autoinfectionists, Ahlfeld is a well-known example. He declares (*Zeitschr. f. Geb. und Gyn.*, Bd. xxvii, H. 2) that pathogenic micro-organisms are always present in the vagina and in condition to take on virulence when a favorable soil is provided by the decomposing discharges following labor. Every obstetrical patient, therefore, he contends, is liable to infect herself. With him in this opinion are Kehrer, Karewski, Kaltenbach, and others.

Prioleau (*Arch. de tocol. et de gyn.*, 1894, No. 1) maintains that childbed fever may occur from pre-existing micro-organisms in the genital tract in certain conditions of the mother or of her environment which favor sepsis. In bad general health and under exposure to a vitiated atmosphere the puerperal woman, he believes, may become septic from her own vaginal secretion.

Walthard, in a recent paper (*Arch. f. Gyn.*, Bd. xlvii, H. 2), relying mainly on culture tests, found strictly normal vaginal secretions in but fourteen per cent. of pregnant women. Streptococci were present in twenty-seven per cent. Even the normal mucus, he declares, does not, as claimed by Döderlein, necessarily prevent the growth of pyogenic germs. The streptococci, like those found on mucous membranes in other portions of the body, are not virulent, but saprophytic on healthy tissues. Yet in certain conditions of diminished resisting power they may be the cause of puerperal fever. Other pus-producing organisms are frequently present, and, under like circumstances, may give rise to septic processes.

Menge reaffirms the views of Walthard.

Inoculation experiments on animals at the hands of several ob-



servers, using pathological secretions, have resulted in suppuration. Like results, too, have been alleged for similar experiments with normal vaginal mucus.

Döderlein, after restudying the question in a series of observations upon nearly two hundred cases (*Das Scheidensekret*, Leipsic, 1892), distinguishes normal from pathological secretions. The former, he contends, contain only fission fungi and are innocuous. Pathogenic bacteria, he declares, do not live in healthy vaginal mucus, the normally acid condition of the secretion, which he attributes to an acid-producing bacillus, being not only inimical, but fatal to them. In diseased conditions of the vaginal mucosa its secretion may infect. Here the acidifying bacillus disappears, and wound-infection germs abound in active and virulent form. Clinically, healthy are distinguished from morbid secretions by their reaction to litmus as well as by their gross appearance. In health the reaction is strongly acid; in diseased conditions of the vaginal mucosa the reaction is either alkaline, neutral, or feebly acid. The latter observation is confirmed by Williams, of Baltimore.

Burkhardt (*Arch. f. Gyn.*, Bd. xlv, H. 1), examining one hundred and sixteen cases, indorses in the main the opinions of Döderlein. He could not in all instances, however, draw the line so sharply between normal and pathological conditions. In about four per cent. the question remained in doubt.

Similar views are held by Winter, Ott, Czerniewski, Burguburu, Séychéron, Witte, and Steffeck.

Krönig (*Deutsch. med. Woch.*, No. 43) concludes, from a series of experiments at the Leipsic clinic, that the streptococcus is killed by the healthy mucus within two or three days at the longest after its introduction. Other organisms introduced from without are soon destroyed. Clinically, the genital canal, he holds, may be considered aseptic in healthy women when from forty-eight to seventy-two hours have elapsed since the last examination. Moreover, he declares that the secretion, whether healthy or not, is always sufficiently acid to prevent the growth of the pus streptococcus. He found no case of alkaline or even neutral secretion in three hundred examinations, and, with the exception of the gonococcus, no pathogenic organisms in women who had not been examined internally. He recognized several forms of vaginal cocci and bacilli, but all of them non-virulent. His observations upon the puerperium bear him out in the conclusion that the vaginal secretion has no important agency in childbed infection. Gönner, Bumm, Thomen, and many others are of like opinion.

The authorities thus briefly quoted may serve to present the confused state of the question from the standpoint of the bacteriologists.

Their findings, if any conclusion can be drawn from the conflicting testimony, go to establish the belief that the vaginal secretion is infectious when diseased, and possibly so in health. Does it follow that these genital germs must be counted among the causes of puerperal fever, and as a corollary that vaginal disinfection is a necessary preliminary to the safe conduct of labor?

With a view to the collection of clinical data bearing on the question, I have taken pains to ascertain the prevailing practice among obstetricians in the matter of preliminary disinfection, especially internal disinfection, and, as far as possible, the results obtained under individual methods.

It should be stated that in the matter of external disinfection there is no difference of practice except in minor details.

The hospital patient is given a full bath on admission, with scrupulous cleansing of the external genitals, and she receives an entire change of clothing. Usually the bath is repeated from once to several times weekly during the waiting period. A general bath is the rule at the beginning of labor. The lower bowel is emptied and washed out with an enema, the entire lower half of the body is rendered as nearly aseptic as possible, and all precautions are taken with reference to the surgical cleanliness of the patient's clothing, the bedding, and other surroundings. In some hospitals a compress kept moist with a non-irritant antiseptic is worn over the vulva during the first and second stage of labor.

At the Sloane Maternity in New York, under McLane, the patient receives a bichloride douche (1 to 5,000) on admission. A similar douche is given at the beginning of labor, and is repeated on expulsion of the placenta. Dr. Brodhead, the resident physician, reports no mortality in cases conducted wholly in the hospital.

At the New York Maternity Hospital (Murray, Coe, Grandin, Jarman, Edgar) a sublimate vaginal injection (1 to 1,000) is ordered when the woman falls in labor, and a 1-to-10,000 douche at the close. The post-partum douche is carried into the uterus when intra-uterine manipulation or instrumentation has been practiced during the labor. In 1,321 cases, 1891 to 1895, there were no septic deaths.

In the service of the New York Society Lying-in Hospital no preliminary douching is employed except for cause. A 1-to-10,000 bichloride injection is given on expulsion of the placenta. The uterus is irrigated after intra-uterine manipulation. Eight septic deaths oc-

curred in 3,737 cases, but much of the work was done under unfavorable conditions in tenement houses.

At the New York Post-graduate Hospital no internal disinfection is practiced in ordinary labors before or after the birth in normal conditions. The vagina is douched before operation and the uterus after intra-uterine interference, but not with bichloride. A three-per-cent. carbolic or a one-per-cent. creolin solution is employed. Dr. von Ramdohr, in charge of the service, reports eight hundred and fifty consecutive cases with one death from sepsis. Under a similar plan he has had no septic deaths in private practice in ten years.

Edgar, in private cases, repeats the external disinfection before each vaginal examination and after each evacuation of the bladder or the rectum. No ante-partum douching is permitted in normal labors. In specific vaginitis the infected tract is prepared as for hysterectomy.

Before a forceps operation (low or medium) the vagina is irrigated with a creolin solution. For version, or any operation in which the uterus is invaded, the vagina is cleansed with nearly the same thoroughness as in major gynæcological work.

Lusk does not employ preliminary douching in normal cases. He thinks they increase the morbidity by disturbing the natural protecting agencies against infection. Internal antisepsis is practiced when the hand or an instrument is introduced into the uterus.

Ayers, of the New York Polyclinic, practices vaginal irrigation at the beginning and the close of labor. Women having a genital discharge are douched twice daily during the puerperium. In the out-patient department no internal disinfection is used except in the presence of fœtid discharges. In seven hundred and fifty cases in the out-patient clinic, eleven were infected, but none fatally. In the hospital clinic there have been four hundred and fifty confinements since October, 1893, with no deaths. Six had septic fever, all believed to have been infected before admission.

Davis, of Philadelphia, uses prophylactic douching for several days before labor begins when there is much vaginal discharge. If this consists of mucus only, a 1-to-5,000 sublimate solution is employed. In all other cases of abnormal secretions a mixture consisting of creolin and green soap, each sixteen ounces, and a solution of potassic hydrate, five ounces, is chosen. Of this a two-per-cent. solution is used. The injections are repeated twice daily till the discharge ceases. Dr. Davis speaks confidently of the value of this practice. At the beginning of labor all patients receive a douche of the bichloride of mercury, 1 to 5,000.

In the presence of syphilis or of gonorrhœa the additional precaution is taken to dust the ulcerated surfaces freely with iodoform, and a light iodoform-gauze packing is frequently employed. The iodoform sprinkling is sometimes preceded by applications of carbolic acid and iodine to the local lesions. If the membranes rupture before the patient is in bed an antiseptic napkin is worn till the child is expelled.

In private practice patients are questioned with reference to the existence of a vaginal discharge during pregnancy, and its character—whether white, yellow, or red, and whether it irritates the external surfaces. If only a hypersecretion of mucus is reported, no douche is prescribed. In the presence of pathological discharges a solution of creolin and green soap, half a drachm of each to the quart of water, is ordered for injection night and morning. In four hundred and seventy-seven cases under his supervision at the Maternity of the Jefferson Medical College, a portion of which number were attended in their own dwellings, there were two septic deaths. One of these women died of acute yellow atrophy of the liver; the other had gonorrhœa before labor and died of an ascending nephritis. This number included many cases on which major operations were performed. Dr. Davis has had no septic mortality in private work.

Hirst, at the University Maternity in Philadelphia, orders, in addition to the usual external disinfection, a single vaginal douche of 1-to-4,000 bichloride when labor begins. With private patients the douche is omitted. There has been but one death at the Maternity in six years; that followed Cæsarean section. He has had no deaths from sepsis in private practice.

At the Preston Retreat, under Norris, a vaginal injection of 1-to-2,000 sublimate solution is given at the beginning and close of labor. In simple cases not more than two internal examinations are made. In four hundred and eighty consecutive deliveries under this plan there have been no septic deaths.

Green, of the Boston Lying-in Hospital, in both hospital and private cases, requires during labor one or more vaginal douches of the mercuric chloride (1 to 3,000). He reports no deaths from sepsis in family practice, and of 2,594 hospital cases he has lost but one from that cause.

In the Maternity Hospital in Baltimore, under Dr. Neale, an internal irrigation is used only after students' examinations or for other special reasons. In one hundred and fifty cases in 1894-'95 there was no septicæmia. In sixty-eight the temperature never rose above

99.5°; in forty-nine others it did not exceed 100.5° during the puerperium.

Kelly practices vaginal disinfection before labor and in the beginning stage only in cases in which there has been much leucorrhœal discharge.

Fry, of Washington, resorts to internal disinfection only for cause. He has one septic death in about six hundred cases and his morbidity is small.

Etheridge, of Chicago, practices preliminary douching with a saturated boric-acid solution in case of purulent discharges. In normal conditions he relies on external measures.

Kaltenbach had but three cases of septic fever in fifteen hundred births, in which he employed prophylactic irrigation, and these were laid to the under-physicians.

Schauta, of Vienna, writes that after a rigorous external cleansing he gives a single vaginal douche of one-per-cent. lysol solution before the first internal examination.

In 12,052 confinements (January, 1892, to November, 1895) he lost thirty-one women from sepsis—a quarter of one per cent. Of these, sixteen were infected on admission, leaving a mortality of an eighth of one per cent. chargeable to the clinic.

Goldberg, of Dresden (*Die Antiseptik in der Geburtshülfe. Therap. Monatshefte*, Mai, 1894), reports the following experience: During six years, in 3,393 normal labors in which vaginal examinations were made, internal disinfection was practiced by douching with a 1-to-4,000 bichloride solution, aided by gentle friction. Two tenths of one per cent. died. In 2,014 examined cases, in which no internal antisepsis was employed, eighty-eight per cent. were infected and one and a half tenths of one per cent. died. Douches, he says, are therefore not only unnecessary but actually harmful. The difference in mortality, however, is insignificant.

In abnormal births the vagina and, if possible, the cervix are disinfected at the beginning of labor (sublimat 1 to 4,000). When many examinations are required, repeated douching is used. After labor the entire birth canal is washed out with a three-per-cent. carbolic douche, the uterus meantime being well contracted by the aid of a hot abdominal compress.

The large proportion of obstetricians who have adopted the antepartum douche as a routine measure speaks for the widespread influence of the doctrine of self-infection. Belief in the danger of vaginal germs seems to have found very general acceptance among



obstetric specialists. Yet it will be observed that, with few exceptions, they make no attempt at complete surgical cleanliness, trusting for the most part to the douche alone. If, however, the vaginal bacteria are to be counted as factors in puerperal sepsis, even the partial disinfection implied in the preliminary irrigation should yield better puerperiums than are obtained with none at all. This is not sufficiently apparent in the experience cited.

In 23,467 douched cases the septic mortality was one tenth of one per cent. In the small number of non-douched cases included in the foregoing statistics (2,764) the death-rate from sepsis was one and a half tenth of one per cent. The difference is too small to prove anything for autoinfection, especially if we take into account the varying personal factors which necessarily enter into the statistics of different authorities.

The clinical facts thus far cited, however, would seem to show that the opponents as well as the friends of the douche have been too radical. Those who reject prophylactic douching during labor maintain that it breaks down the natural safeguards against infection; that, moreover, the superficial necrosis produced by concentrated solutions may even add to the risks they are intended to prevent. These views are not substantiated by the foregoing facts. They prove little or nothing more against the douche than that it is unnecessary. In expert hands it would appear to be practically harmless even in normal conditions of the vaginal secretion. One thing is strikingly shown in the experience presented—what has been accomplished in diminishing the septic mortality and morbidity of childbed must be credited almost wholly to measures addressed to the prevention of contact infection.

More conclusive are the results of observations in parallel series of cases made in one and the same clinic, with and without vaginal antiseptics. Such we have from several authorities, notably Goldberg, Zweifel, and Leopold.

The comparative study of Goldberg has already been alluded to, and his statistics are presumably included in those of Leopold presently to be mentioned.

Zweifel found from observations in a large number of births that vaginal douches influenced the course of the puerperium more unfavorably than the omission of the same. He holds that the healthy parturient, in the absence of contact-infection, is safe against septic disease. The natural secretion, he believes, is a better protection than any artificial antiseptic.

At Leopold's clinic during the past few years numerous observations in a very large number of cases have convinced him that irrigation is not only indispensable, but that in normal births it does positive injury (*Arch. f. Gyn.*, Bd. xlvii, H. 3).

In a series of 427 cases gradually collected of women who were neither examined internally nor irrigated, the result was extraordinarily good, only seven (1.6 per cent.) showing elevation of temperature due to infection. In about the same number of cases in which the vagina was washed out before each examination with a weak disinfectant (1-to-4,000 bichloride) the result was not so good.

Of 1,136 cases occurring between May 1, 1888, and April 25, 1889, in which after the usual external cleansing the vagina was gently irrigated with 1-to-4,000 bichloride, eighty per cent. had no elevation of temperature above 38° C., twenty per cent. had fever, in some cases very high, and there were some deaths. Since, in 1887, the percentage of fever-free patients had been 82.8 per cent., under the opposite plan, it was believed that the douching was injurious.

The query was then suggested, What would be the result if all use of vaginal antiseptics, even in cases which were examined a number of times, were abandoned, and attention confined entirely to subjective disinfection and to the cleansing of the external genitalia?

Eleven hundred and twenty-three normal confinements were treated in accordance with this plan. The normal mucous discharge was allowed to remain in the vagina, and the result was much better than in the preceding series; the number of perineal and vaginal tears diminished; there were fewer cases of hæmorrhage, less fever during the puerperium, and the general health of the patients was markedly better. Ninety and twenty-nine hundredths per cent. had no rise of temperature above 38° C.

In a series of 1,358 births during the year 1890, 1,254, or 92.34 per cent., had no fever during the puerperium; 1,073 of these were normal labors and were not irrigated, although 804 were examined internally. Of 1,487 similar cases in 1891, 91.6 per cent. were wholly free from fever. The conclusion reached was that disinfectant irrigation of the vagina in normal births is oftener harmful than helpful, and should be resorted to only when pre-existing infection is probable. His results were always better in such cases without douching than with it. Prophylactic irrigations of the vagina in normal confinements he regards as not only an unnecessary but in many cases a dangerous procedure.

Leopold's experience is summed up in the following table:

*Experience at the Dresden Clinic. (Leopold.)*

	No. of observations.	Fever-free.
Douched :		
1886.....	1,387	78.23
1887.....	1,388	82.6
1888.....	1,369	79.1
Till April, 1889.....	440	83.1
Not douched :		
From April, 1889.....	836	90.8
1890.....	1,358	92.3
1891.....	1,487	91.6
1893.....	407	94.4
Douched :		
1893.....	400	87.0
January to June, 1894.....	800	84.6

This array of clinical facts coming from so reliable a source and so carefully worked out from a large number of cases is entitled to great weight. If we accept them, as we must, they dispose of the question of self-infection in healthy women, and they condemn the routine douche as a useless and even injurious practice.

That puerperal fever can sometimes be traced to pathological conditions of the vaginal secretion is a matter of common observation. This is frequently true in the presence of gonorrhœal infection.

My own practice for several years has been to use no ante-partum douching except for cause. Repeated vaginal examinations have been made and instrumental and manual operations performed with no internal disinfection in women apparently in health. Yet I have had no septic death in more than ten years after labors wholly under my personal care. Minor grades of infection have occurred rarely. Some of the latter in my recent experience I could trace to a previously unrecognized chronic gonorrhœa.

In a case of mild phlegmasia alba dolens now recovering I learned that the child in the next preceding birth had ophthalmia.

Mrs. A., recently seen in consultation, was delivered of her second child about four weeks ago. Her obstetrician, a man of exceptional skill, had used every external antiseptic precaution. No douching was employed. Five or six internal examinations were made, the first, three hours after rupture of the membranes and while the head was still in the uterus. On the day following the birth the woman had a chill and the temperature rose to 103.4° F. It was then learned that the mother had suffered from an ichorous vaginal discharge for two weeks before labor. The temperature was of a pyæmic character

and more than once reached  $106^{\circ}$  F. The child, a girl, developed ophthalmia on the second day and at the same time a gonorrhœal discharge from the vagina.

The puerperal disease was doubtless a mixed gonorrhœal infection. This woman died in the fourth week.

In thirty-one consecutive hospital births recently conducted under my supervision, without internal disinfection during labor, there was septic fever in five. In four of the fever cases there was a subacute or chronic gonorrhœa. The puerperal temperatures ranged from  $100^{\circ}$  to  $103^{\circ}$  F. All the women recovered. Looking over a large number of hospital histories, sixteen cases having gonorrhœal secretions were collected. The diagnosis was substantiated by the occurrence of ophthalmia in the child in twelve, the Credé solution having been imperfectly applied. In the remaining four, the history, together with the character of the vaginal discharge, left no room for doubt. Eight had feverless childbeds, in eight the temperature exceeded  $100^{\circ}$  F., in five the maximum was over  $100.5^{\circ}$ , and in three it reached  $103^{\circ}$  F. There were no deaths.

Krönig (*Centralbl. f. Gyn.*, 1893, No. 8) publishes a series of observations in nine cases of gonorrhœa in childbed. In four the temperature rose to  $104^{\circ}$  F. Seven had marked fever for two weeks after confinement; in two there was septicæmia. He believes the infection tends to invade the uterus after labor.

With reference to the value of the litmus reaction for distinguishing pathological from normal secretions, I have not been able to fully confirm the findings of Döderlein. Of fifty-three examinations, the reaction was strongly acid in thirty-six, feebly acid in sixteen, and alkaline in one. A marked acid reaction was noted in three instances in which the secretions were yellowish or greenish in color and evidently diseased. Of the feebly acid secretions the gross appearance was normal in one. Additional observations were made at my request by Dr. H. F. Jewett on nine patients in the gonorrhœal ward at the Kings County Hospital. The vaginal mucus showed a strong acid reaction in two, a feebly acid reaction in four, and was alkaline in three. All these patients had passed the acute stage. In the two yielding a strongly acid response to the litmus test the characteristic discharge had ceased for over two weeks. While the litmus reaction is generally to be trusted, the only strictly reliable evidence, at least in border-line cases, must be sought in the culture test.

The existence of a yellowish, greenish, or foetid, and especially of an excoriating discharge, is to be taken as evidence of disease and of

the presence of wound-infection germs in virulent condition. In all such cases prophylactic disinfection is indicated.

When hand or instrument is to be carried into the uterus, long experience leads me to believe that vaginal disinfection is unnecessary, provided the secretion is healthy, the woman in good condition, that all else is aseptic, and that no special violence is done to the parts.

When disinfection is called for, on whatever indication, it should be of the kind usual in surgical work. A green-soap and hot-water cleansing for five minutes, followed by irrigation for the same length of time with a weak mercurial, a carbolic, or a creolin solution, removes the germ-laden secretion.

If mercuric salt is used, the injection is followed with a quart or two of normal saline or a saturated boric-acid solution to prevent mercurial poisoning. The cervical canal is included in the process. Gentle friction is essential with both steps in the cleansing. To avoid abrasions, the friction is best applied with the fingers or with a cotton ball or a soft cheese-cloth sponge held in the grasp of a dressing forceps.

When time permits, morbid secretions are best corrected by a mild but prolonged antiseptic douche, repeated once daily, or oftener, for several days before labor. A light packing with iodoform gauze maintains in some degree a continuous disinfection. It is unnecessary to say that these measures are to be conducted under an asepsis, both subjective and objective, no less strict than is practiced in major surgical procedures.

In closing I submit the following conclusions :

There is no clinical proof that puerperal infection can occur from normal vaginal secretions.

All childbed infection in women previously healthy is by contact.

Prophylactic vaginal disinfection as a routine measure is unnecessary, and even in skilled hands is probably injurious.

Its general adoption in private practice could scarcely fail to be mischievous.

In healthy puerperæ, delivered aseptically, post-partum douching is also contraindicated.

These rules must hold good in the simpler cases of manual or instrumental interference in which the uterus is not invaded.

A purulent vaginal secretion exposes the woman to puerperal infection.

In the presence of such discharges at the beginning of labor the vagina should be rendered as nearly sterile as possible.



Concentrated antiseptic solutions should not be used, and the process should be conducted with the least possible mechanical injury to the mucous surfaces.

In case of highly infectious secretions, the preliminary disinfection should be followed by douching at intervals of two or three hours during the labor.

Sterilized glycerin, or other suitable material, may be used to restore the proper lubrication of the birth canal.

The safest and most efficient means for correcting vicious secretions is a mild antiseptic douche repeated once or more daily for several days during the last weeks of pregnancy.

It is the duty of the obstetrician to know before labor the amount and character of the vaginal discharge.

Clinically, the amount of the discharge, its gross appearance, and that of the mucous and adjacent cutaneous surfaces usually furnishes a sufficient guide to the treatment.

Probable unclean contact within twenty-four or forty-eight hours is an indication for prophylactic disinfection.

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## THE MORTALITY FROM PUERPERAL INFECTION IN CHICAGO.\*

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The accompanying table (Table A) comprises all the data that I have been able to obtain concerning the mortality from all puerperal diseases in Chicago for the last forty years. I will postpone to some future occasion the discussion of the non-infectious puerperal diseases, and will confine myself to puerperal infections. I will first describe the sources from which the data for the table have been obtained, and will then mention some of the interesting deductions which can be drawn from it, and make a few comparisons with statistical reports from other cities and countries.

The mortality statistics are taken from the annual reports of the City Board of Health. I have divided the forty years into decennial

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periods. The figures for the first decennium are the least reliable. As will be seen, nearly all deaths from puerperal affections are classed under puerperal fever or childbirth. As will be shown, many deaths ascribed to childbirth are due to puerperal infection, and a method of correcting the error in the latter cases will be given. An estimate of some value as to the ratio of puerperal infections to puerperal diseases can probably be made, but the ratio of deaths in childbed to all deaths is perhaps as accurate in this period as in the succeeding decades.

The mortality records of Chicago begin with the year 1851. The records for 1851, 1852, and 1853 are especially meager, and there is no advantage in considering any statistics prior to 1856.

In the report of the Health Department for 1894, on page 263, there is a table giving the mortality from puerperal fever since 1851. The discrepancies between the figures there given and those in my tables, I will not attempt to reconcile, but the results I give have been obtained by careful search through all the records, and I believe them to be as reliable as can be secured.

Every one knows that all cases of death from puerperal infections are not returned in the death certificates as such. At the present time especially, the exogenetic character of puerperal fever is more or less generally recognized by the laity, and the admission by a physician of such a condition in a patient whom he had delivered would often subject him to grave reproach. Hence the frequency of typhoid fever, malarial fever, and similar diseases during the puerperium. Deaths from such causes can not here be considered. These errors are not confined to Chicago, but are particularly frequent in the country, if one may judge from current statements. I have often been told by country practitioners that they never see puerperal fever, but that they find malarial fever quite common in the puerperium.

Two or three years ago Reynolds began to study the statistics of puerperal fever in Boston, and was surprised to find that he himself had been called to see more cases of puerperal fever than had been reported that year. The unreliability of the statistics of puerperal infection is generally admitted, and statisticians have been obliged to correct the figures in the reports. Boxall, who has made very elaborate studies of the reports of the Registrar General in England and Wales, has added one twelfth to the recorded mortality from puerperal infection. Ingerslev, in a careful study of the mortality in Copenhagen and other Danish cities, after a consideration of all doubtful cases, adds about twenty per cent. to obtain the correct mortality from puerperal infection. In my statistics I have added on an aver-

age 16.5 per cent. for the whole period. This result has been reached in the following way; I have not taken into account the deaths occurring in the puerperium which are reported as due to non-*puerperal* diseases such as typhoid or malarial fever, rheumatism, or pneumonia. I have also not included reported deaths from *septicæmia* or *peritonitis*. During the last twenty years an average of about fifty deaths from *septicæmia* and about one hundred and thirty from *peritonitis* have been annually reported. A majority of these deaths occurred in females. *Septicæmia* must occur more frequently in men, since it so often results from injuries. Dr. Doherty, some months ago, selected from the recent records a considerable number of deaths reported as due to *peritonitis*, and wrote to the physicians making the reports in the endeavor to discover whether the *peritonitis* was of *puerperal* origin. He obtained but few replies; sufficient, however, as he informs me, to confirm the statement that certain deaths reported as *peritonitis* were cases of *puerperal* infection. Dr. Doherty's investigations, which are soon to be published, may increase the ratio which I have used in correcting the estimate of mortality from *puerperal* infection. Meantime I have no hesitation in saying that from ten to fifty or more deaths occur each year from *childbed* infection which are reported as due to non-*puerperal* *septicæmia* or *peritonitis* or non-*puerperal* fevers, etc. These errors tend to make my estimates conservative.

The cases that I have considered in correcting the table of deaths for *puerperal* infection are found in the two classes: 1. Deaths reported as due to *metritis*, *metroperitonitis*, *metrophlebitis*, *pelvic peritonitis*, *pelvic cellulitis*, and *pelvic abscess*. 2. Deaths reported as due to *childbirth*, *abortion*, and *miscarriage*. I believe that clinical observation proves that the cases of the first class are due to *puerperal* infection, *gonorrhœal* infection, or meddlesome *gynæcology*. One can not accurately determine from the records which of these infections produced the condition reported as the cause of death. Possibly something may be inferred from the duration of the disease. Nearly all of these deaths were of women of the *childbearing* age. The duration of the sickness, especially in the cases reported as *metritis*, *metroperitonitis*, and *pelvic peritonitis*, was generally from three to ten days, and corresponded in this respect with the cases of *puerperal peritonitis*. I add one half of these cases to the cases of *puerperal* infection, and in doing so feel certain that the number is rather underestimated.

The designation "*Childbirth*" as a cause of death is about as

definite as "Visitation of God," which formerly often appeared on death certificates. I suppose the deaths ascribed to childbirth are due to hæmorrhage, embolism, etc.; to general pathological conditions, such as heart disease, nephritis, etc.; and to puerperal infection. The number of deaths due to puerperal infection which are reported as due to childbirth I have approximately estimated by considering the duration of the disease. If the deaths were due to hæmorrhage, embolism, or other accidents of labor, such as rupture of the uterus, death would probably occur within two days in the great majority of cases. Deaths occurring later might be properly ascribed to infection. It may be said that three days is too short a period for puerperal fever to terminate fatally in any considerable number of cases. That the severest forms of puerperal septicæmia, however, may end fatally within this period is well known. I have attempted to get some data from the Chicago records to show the proportion of deaths that occur from puerperal infection in so short a time. In one hundred deaths, reported due to puerperal infection, I find the following duration of illness:

Two days, four cases; three days, thirteen cases; four days, fifteen cases; five days, eight cases; six days, six cases; seven days, fourteen cases; eight days, eight cases; nine days, three cases; ten days, six cases; eleven days, one case; twelve days, three cases; fourteen days, seven cases; fifteen days, one case; twenty-one days, four cases; twenty-four days, one case; thirty-five days, one case; forty-two days, one case; not given, four cases.

In seventeen per cent. of the cases reported as puerperal fever death occurred within three days, and in forty per cent. within five days.

In order to estimate the duration of the disease in the cases reported as dying in "childbirth," I took at random a number of cases from the records of different years. These data are not given in the annual reports, and to look up all the cases from the record books would be an almost endless task. In about forty per cent. of these cases no duration of the disease is given. The records made before a physician's certificate of death was required show that sometimes there was no medical attendant. In about forty per cent. of these cases death occurred within two days. In twenty per cent. of these cases the duration of the sickness was more than two days. One of these cases was reported to have died after a sickness of three weeks. If the duration of the disease was over two days in only one half of the cases where the duration of disease was not given, we have forty

per cent. of all cases reported as childbirth where the sickness lasted longer than two days. After allowing that death in some of these cases was due to other causes, I estimate that one third of all the deaths ascribed to "childbirth" were due to puerperal infection.

Quite similar results were obtained from a study of death due to "abortions" and "miscarriages."

I have therefore made a corrected list of deaths due to puerperal infection by adding to the number so reported one half of the deaths attributed to metritis, metroperitonitis, metrophlebitis, pelvic peritonitis, pelvic cellulitis, and pelvic abscess, and one third of the deaths attributed to childbirth, abortion, and miscarriage. These corrections for the last decennium amount to 14.4 per cent., for the period from 1876 to 1885 to 16.3 per cent., and for the entire period of forty years to about 16.5 per cent. The correction is nearly twice that of Boxall and about four fifths that of Ingerslev.

In order to obtain the total of deaths due to puerperal causes, I add to the number of deaths reported as due to puerperal infection 16.5 per cent. of this number, and also one half of the number of deaths due to "uterine hæmorrhage," which I consider was puerperal, as I shall explain when I discuss the non-infectious puerperal diseases.

These results show an average annual mortality of 165, or, as corrected, 189, from puerperal infection during the last decennium, and that 64.5 per cent., or, as corrected, 70.6 per cent., of all the deaths from puerperal causes were due to infection. This ratio is shown graphically in Diagram VII for each decennium. It is interesting to note that the corrected ratio does not differ greatly from that given by Ingerslev for the Danish cities for the years 1882 to 1889—namely, 74.2 per cent. Boxall finds the ratio of puerperal-fever mortality to puerperal mortality for England and Wales from 1847 to 1892 to be 40 per cent. From 1847 to 1880 the uncorrected ratio was 32.6 per cent. After 1880 the corrected ratio was 52.9 per cent. In Chicago probably more than two thirds of the puerperal mortality is due to infection.

In order to compare the number of deaths from puerperal infection in the different years and periods with each other and with statistics of other places, it is necessary to secure certain puerperal mortality rates. I have made four series of mortality rates by finding the ratio of puerperal deaths (1) to population; (2) to total number of deaths; (3) to number of deaths of women of childbearing age; and (4) to number of births or to number of confinements.

I have accepted the population as estimated by the Department of



Health, which is obtained from the United States and State censuses and the city and school censuses. The number of deaths is taken from the various annual reports of the Health Department. The Health Department has now made corrections in the number of deaths for the years previous to 1865, but, as I use the figures given in the annual reports for the puerperal mortality, I will also use the number of deaths as there given.

The childbearing age usually extends from fifteen to forty-five. The birth reports of Cook County show that not one half of one per cent. of all births occur after the age of forty-five, and over eight per cent. occur before the age of twenty. About two and a half per cent. occur between the ages of forty and forty-five. As the Health Department records are kept, it is impossible to find the number of deaths between fifteen and forty-five years. The deaths are given for decennial periods—as from eleven to twenty years; twenty-one to thirty years, etc. Since the ages of mothers in about eighty-nine per cent. of all confinements are between twenty and forty years, it might have been of value to compare the puerperal mortality with the number of female deaths between these ages. It is, however, true that the percentage of puerperal mortality outside the period of twenty to forty years is greater than the percentage of confinements outside the same period. This is particularly true of puerperal infection. In one year I noticed that only sixty per cent. of deaths from puerperal infection were within the period of twenty to forty years. Now, as I could not get the female mortality for the years fifteen to forty-five, I concluded to use the mortality for the ages twenty to fifty. I believe that the puerperal mortality rate thus obtained will be but little different from that which would be found if we had the other data, and what difference there is will be on the side of conservatism; that is, we will get too small a puerperal mortality rate.

The Health Department reports, however, do not furnish the number of female deaths between twenty and fifty—only the total deaths between these ages. Hence it was necessary to estimate the number of female deaths. This I did by adopting the same ratio for female deaths from twenty to fifty to all deaths from twenty to fifty that I found between all female deaths and all deaths. This is somewhat too large a ratio, and gives me too many female deaths between twenty and fifty. As is well known, there are more males than females born, and, consequently, more die. It is especially during this period from twenty to fifty years that this greater death-rate prevails. The diseases which kill more men than women are all zymotic dis-

eases, except septic diseases, dietetic diseases, diseases of the nervous, circulatory, and respiratory systems, and violence. Men are much more subject to these affections during the period from twenty to fifty; and hence the male death-rate would be much higher than the female, were it not for the especial danger to women caused by the reproductive system. The diseases which are more dangerous to women, apart from those of the reproductive system, are cancer, which is more common after forty years; old age, which, of course, is a cause of death acting after fifty years; and the septic diseases, which, as just stated, are chiefly of puerperal origin. Thus a study of mortality tables makes it probable that the male death-rate from twenty to fifty, as compared with the female death-rate for the same period, is greater than the ratio between all male deaths and all female deaths. This fact I have also confirmed from the vital statistics of New York, Brooklyn, Boston, and Philadelphia for the six years ending May 31, 1890, as furnished by Dr. Billings in the United States census reports. The number of female deaths between twenty and fifty years are there given, and, comparing these with the figures obtained by making the estimates in the way just suggested, I have obtained the following table:

	Female deaths between 20 and 50 years for 6 years ending May 31, 1890.	Ratio of all female deaths to all deaths.	Estimated num- ber of female deaths between 20 and 50 years.
		Per cent.	
New York.....	29,297	46.38	30,863
Brooklyn.....	12,403	47.896	12,658
Boston.....	8,379	49.605	8,564
Philadelphia.....	15,932	47.395	16,023

It will be seen that the estimated exceeds the actual number of deaths in Philadelphia by 91 in a total of about 16,000; in Boston, by 185; in Brooklyn, by 250; and in New York, by over 1,500.

It is therefore evident that, when I compare the puerperal mortality with the estimated number of female deaths between the ages of twenty and fifty, I am getting a somewhat too low mortality rate, or I am again erring on the side of conservatism.

Not only in obstetric hospitals, but also in all foreign countries, puerperal mortality is very properly compared with the number of confinements. Such a mortality rate is very difficult to obtain in this country, because of our lack of an efficient system of birth registra-

tion. I do not need to dwell on the reasons for this condition of affairs. In Chicago not over half the births are reported ; hence the birth records are of no value in getting a mortality rate, and we must seek for data from some other source.

A very interesting discussion of the subject of birth-rate in general, and of the birth-rate of the United States in particular, is given by Dr. Roger Tracy in the supplement to the *Reference Handbook of the Medical Sciences*. The birth-rate of the United States was found to be 31.6 per thousand of population by the census of 1880. Dr. Tracy explains why this figure is much too low. Dr. Billings has estimated the birth-rate for the United States at 36 per thousand. Dr. Tracy estimates the birth-rate in New York city at about 38 per thousand. I have concluded to adopt for my purpose the birth-rate which Dr. Reilly, the Assistant Commissioner of Health, has computed for Chicago—viz., 38.7 per thousand. It certainly is not too large. Dr. Reilly has very carefully computed this ratio after considering all elements of the problem, among which are the character of the population, the marriage rate, etc. I believe that the use of this ratio for computing the number of births and confinements is the only way in which we can obtain this puerperal mortality rate, and that it will be sufficiently accurate to give valuable results for comparison with the puerperal mortality of other countries.

With this explanation of the sources of my data I submit the accompanying tables and diagrams, which explain themselves. They show the rate of mortality from puerperal infection for the four decennial periods, according to the uncorrected figures of the Health Department reports, the puerperal infection mortality rate according to the figures corrected as explained, and the mortality rate from all puerperal affections according to the figures respectively uncorrected and corrected.

It will be seen that the shape of the curves in the diagrams do not differ very materially, whether the mortality rate is computed on the basis of population, of the total number of deaths, of the number of female deaths between twenty and fifty years, or of the number of confinements. Puerperal infection, as shown both by the uncorrected and corrected figures, was greatest in the decennial period 1866-'75 ; it decreased during the next decennium, but not quite as rapidly since. The lower mortality from puerperal infection during the first decennium—that is, between 1856 and 1865—must be accepted with some suspicion on account of the somewhat uncertain character of the statistics. From the fact that the total puerperal mortality dur-

ing the first period was highest, it is quite probable that puerperal infection was worst at that time. Perhaps it would have been more correct to have adopted another coefficient of correction for this period, but the absence of the records, which were destroyed in the great fire, makes it impossible to get any data. It is at least certain there has been a decrease in the number of deaths from puerperal infection as well as from all puerperal affections.

It should be noted that in all the diagrams the points of intersection of the curves with the vertical lines do not represent the mortality of the middle of the period, but the average mortality of the period. For example, in Diagram I the highest point on the second line does not mean that the mortality was 37.5 per one hundred thousand in the year 1870, but that this was the average mortality of the decennium.

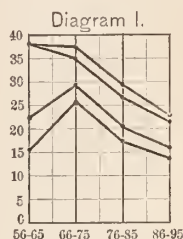


Diagram I.  
Puerperal mortality per 100,000 pop. Puerp. infection uncorrected and corrected; all puerp. diseases uncorrected and corrected.

Table III and Diagram III are of especial interest. They cover only the last three decenniums, since the number of female deaths between the ages of twenty and fifty years could not be determined for the years 1856 to 1865. The table shows that from 1866 to 1875, according to the uncorrected figures, more than eleven per cent. of all women who die between twenty and fifty die of the preventable disease, puerperal infection, or, according to the corrected figures, twelve and three quarters per cent. In other words, one hundred and twenty-seven out of every thousand women who died, died of puerperal infection. The record is much better during the last ten

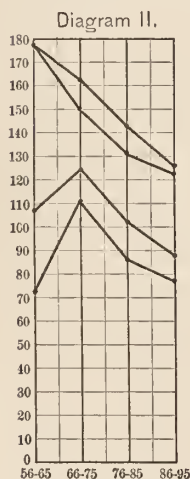


Diagram II.  
Puerperal mortality per 1000 deaths.

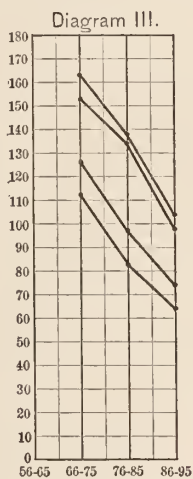


Diagram III.  
Puerperal mortality per 1000 female deaths, from 20-50.

years, but still seventy-three out of every thousand deaths are to be ascribed to this cause. The full significance of these figures appears

TABLE A.

Rate of puerperal infection mortality per 100 female deaths between 20 and 50 yrs.	6.94	7.14	6.53	5.96	6.15	6.01	8.01	10.35	9.49	9.15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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75	13	4	57	74	1	13	14	2	12	..	..	..	2	16	104	20	1	6	90	12	8	8	28	118	771
74	23	..	64	87	1	6	7	3	10	..	..	..	..	13	107	20	2	13	100	9	6	6	25	125	792
73	61	..	133	104	..	14	14	6	10	..	..	3	1	20	228	18	..	15	208	10	13	14	37	245	1,035
72	32	..	131	164	2	17	19	1	16	..	..	1	1	19	202	9	..	13	175	16	13	10	39	214	1,058
71	..	..	68	68	1	5	6	..	9	..	..	1	..	10	84	1	..	9	71	9	7	3	19	90	698
70	12	..	55	68	2	9	11	..	9	..	..	..	..	9	88	13	2	5	80	9	7	3	19	99	690
69	12	..	60	72	2	7	9	..	12	..	..	..	..	12	93	8	..	..	79	12	3	3	18	97	564
68	..	..	39	39	..	8	8	..	11	..	..	..	..	11	58	..	..	..	42	11	3	2	16	58	549
67	..	..	29	29	..	23	23	..	..	..	..	..	..	..	52	..	..	..	37	..	8	7	15	52	473
66	..	..	18	18	1	63	64	..	..	..	..	..	..	..	82	..	..	..	39	..	21	22	43	82	593
	153	4	654	2	813	10	165	175	12	89	..	5	4	110	1,098	89	5	61	921	89	92	78	259	1,180	7,223
65	..	..	10	10	..	62	62	..	..	..	..	..	..	..	72	..	..	..	..	..	..	..	..	..	..
64	..	..	26	26	..	57	57	..	..	..	..	..	..	..	83	..	..	..	..	..	..	..	..	..	..
63	..	..	10	10	..	64	64	..	..	..	..	..	..	..	74	..	..	..	..	..	..	..	..	..	..
62	..	..	10	10	..	25	25	..	..	..	..	..	..	..	35	..	..	..	..	..	..	..	..	..	..
61	..	..	3	3	..	25	25	..	..	..	..	..	..	..	28	..	..	..	..	..	..	..	..	..	..
60	..	..	10	10	2	5	7	..	1	..	..	..	..	..	18	..	..	..	..	..	..	..	..	..	..
59	..	..	33	33	..	8	8	..	..	..	..	..	..	..	41	..	..	..	..	..	..	..	..	..	..
58	..	..	47	47	..	3	3	..	..	..	..	1	..	..	51	..	..	..	..	..	..	..	..	..	..
57	..	..	33	33	..	10	10	..	..	..	..	..	..	..	43	..	..	..	..	..	..	..	..	..	..
56	..	..	6	6	..	14	14	..	..	..	..	..	..	..	20	..	..	..	..	..	..	..	..	..	..
			188	188	2	273	275	1	1	..	..	..	..	..	465	..	..	..	280	1	93	91	185	465	..

TABLE B.

	1886-'95.	1876-'85.	1866-'75.	1856-'65.
Average annual population . . . . .	1,186,577.2	524,478.2	314,165.1	121,995.0
Average annual number of deaths . . . .	21,297.7	10,693.2	7,298.7	2,588.2
Average annual number of female deaths between 20 and 50 years . .	2,578.3	1,118.0	722.3	.....
Average annual death-rate per 1,000 population . . . . .	17.95	20.39	23.23	21.21
TABLE I.—Puerperal mortality rate per 1,000 population—				
From puerperal infection . . . . .	0.1391	0.1771	0.2588	0.1541
“ “ “ (corrected) . . . . .	0.1592	0.2059	0.2932	0.2296
“ “ diseases . . . . .	0.2157	0.2679	0.3495	0.3812
“ “ “ (corrected) . . . . .	0.2254	0.2931	0.3756	0.3812
TABLE II.—Puerperal mortality rate per 100 deaths—				
Puerperal infection . . . . .	0.78	0.87	1.11	0.73
“ “ (corrected) . . . . .	0.89	1.01	1.26	1.08
“ diseases . . . . .	1.22	1.31	1.50	1.79
“ “ (corrected) . . . . .	1.25	1.44	1.62	1.79
TABLE III.—Puerperal mortality rate per 100 deaths of females between 20 and 50 years—				
Puerperal infection . . . . .	6.40	8.31	11.26	.....
“ “ (corrected) . . . . .	7.33	9.66	12.75	.....
“ diseases . . . . .	9.93	13.47	15.20	.....
“ “ (corrected) . . . . .	10.38	13.75	16.34	.....
TABLE IV.—Puerperal mortality rate per 1,000 confinements—				
Puerperal infection . . . . .	3.59	4.72	6.69	3.98
“ “ (corrected) . . . . .	4.11	5.48	7.58	5.93
“ diseases . . . . .	5.58	7.13	9.03	9.85
“ “ (corrected) . . . . .	5.83	7.80	9.71	9.85
Estimated number of confinements using Reilly's coefficient, 38.7 . . .	459,205	196,972	121,582	47,212
Ratio of puerperal infections to puerperal diseases . . . . .	64.5 per ct.	66.1 p. c.	74.0 p. c.	38.7 p. c.
Ratio of puerperal infections to puerperal diseases (corrected) . . . . .	70.6 “	70.3 “	78.1 “	60.2 “

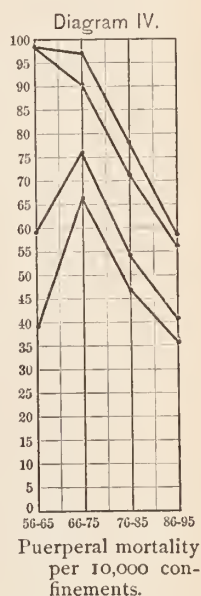
TABLE C.

	Percentage of annual births.	No. of births during last 10 years (estimated).	No. of deaths during last 10 years (puerperal infection).	Mortality rate of puerperal infection per 1,000 births.
January . . . . .	8.712	40,005	191	4.77
February . . . . .	7.974	36,616	197	5.38
March . . . . .	8.547	39,248	192	4.89
April . . . . .	7.525	34,555	156	4.51
May . . . . .	7.563	34,729	130	3.74
June . . . . .	7.745	35,564	96	2.70
July . . . . .	8.593	39,459	131	3.32
August . . . . .	9.026	41,447	102	2.46
September . . . . .	8.749	40,175	105	2.61
October . . . . .	8.550	39,261	92	2.34
November . . . . .	8.391	38,532	111	2.88
December . . . . .	8.601	39,496	141	3.57

when we reflect that these deaths are not from the ranks of infants or those whose term of usefulness is past, and that the estimate is exceedingly conservative. I was incited to undertake this investigation by the statement of Ingerslev that, excepting consumption, there was no other cause of death that carried off so many women in the prime of sexual life as puerperal infection. Only after thirty-five years are cancer and heart disease more important. This statement is, I think, quite true for Chicago, with the possible exception of our deadly endemics of pneumonia.

In the table of details (Table A) and in Diagram V the mortality rate for puerperal infection is given for each year since 1866. It will be noticed that the highest mortality was in the year 1873, when there were two hundred deaths from puerperal infection to every thousand female deaths between the ages of twenty and fifty years. In the year 1892 the puerperal infection mortality was lowest, being sixty to every thousand female deaths between twenty and fifty.

Table IV and Diagram IV may be used for a comparison of our puerperal mortality with that of other countries. I shall call your attention only to a comparison with England and Wales and with the Danish cities. The following table gives the puerperal mortality rate for one thousand births, according to Boxall, for all England and Wales, and for London and the provinces separately. The figures are also given for the period from 1847 to 1880 before corrections were made, and from 1880 to 1892 after corrections were made in the mortality from infection. The table also contains the corrected figures for the puerperal mortality in the Danish cities :



	Deaths per 1,000 births from puer- peral infection.	Deaths per 1,000 births from all puer- peral affections.
England and Wales, 1847-'92.....	1.95	4.85
" " " 1847-'80.....	1.67	5.13
" " " 1881-'92.....	2.49	4.70
London, 1847-'92.....	2.13	4.55
" 1847-'80.....	2.41	5.47
" 1881-'92.....	2.15	3.74
Provinces, 1847-'92.....	1.94	4.87
" 1847-'80.....	1.58	5.00
" 1881-'92.....	2.56	4.89
Danish cities, 1882-'89 (Ingerslev).....	2.94	3 96

It will be seen that during the last decennium the mortality from puerperal infection has been nearly twice as great in Chicago as in London from 1880 to 1892, about two thirds more than that of all England and Wales, and about one third more than that of the Danish cities. The figures for previous years are much more unfavorable for Chicago.

Diagram V.



Table showing the number of deaths due to puerperal infection in 1000 deaths in women between the ages of 20-50 years, by years. Puerperal infection mortality per 1000 females. Deaths between 20-50 years (corrected.)

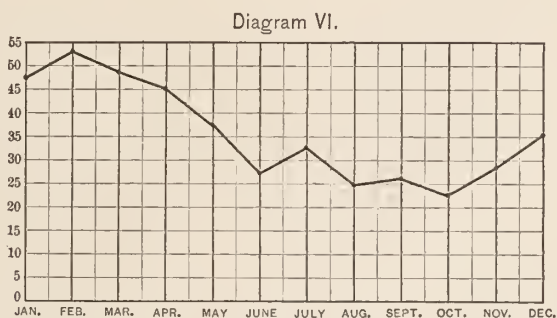
I will compare the puerperal mortality of Chicago with that of only one American city, New York. Here it will be necessary to use the mortality rate based on the population. The latest figures for that city which are accessible to me are in the report of the New York city Board of Health for 1891, and consequently the last period shows an average for only six years.

The mortality rates are as follows :

	Deaths from puerperal infection per 1,000 population.	Deaths from all puerperal affections per 1,000 population.
New York, 1866-'75.....	0.1883	0.3436
" 1876-'85.....	0.1631	0.2841
" 1886-'91.....	0.1401	0.2522

Diagram VIII shows the comparison between the two cities, using, of course, the uncorrected figures for Chicago. It indicates that the mortality from puerperal infection for the period from 1866 to 1875 was about one third higher in Chicago than in New York. This period includes the years 1869, 1872, and 1873, when puerperal fever may be said to have been epidemic in Chicago. The deaths from infection have decreased much more rapidly in Chicago since this period, until now the infection mortality is very slightly greater in New York than here. The ratio of puerperal infection to puerperal disease is less in New York than in Chicago according to the reports, which accounts for the fact that the total puerperal mortality has been greater there during nearly the entire period of thirty and twenty-six years respectively.

Table C gives the data for the computation and the monthly infection mortality rate for the last decennium. The monthly percentage of all births is computed from the returns of the County Clerk's office. No report has been made for 1894 and 1895, hence the returns from 1884 to 1893, inclusive, were used. By the use of these ratios the number of births per month was estimated on the basis of the total population for the decennium. The number of deaths is taken from the annual reports. The figures of the fourth horizontal column are then computed in the ordinary way. Diagram VI is a



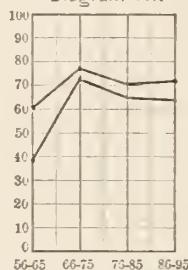
Puerperal infection mortality rate per 1000 confinements by months for 1886-'95.  
(Uncorrected.)

representation of these infection mortality rates. It will be seen that the death-rate is much higher during the first three or four months of the year, being greatest in February, decreases steadily until in June it is only about one half of what it was in February, rises somewhat in July, falls (fluctuating slightly) in August and September, till the



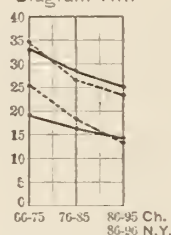
lowest point is reached in October, when it rises again in November and December. In general it may be said that more deaths occur from puerperal infection during the winter and spring than during the summer and autumn months. This fact also agrees with the con-

Diagram VII.



Percentage of puerperal infection mortality to total puerperal mortality. From uncorrected and corrected figures.

Diagram VIII.



Puerperal mortality per 100,000 population. Lower lines puerperal infection. Upper lines all puerperal diseases. Black, New York. Dotted, Chicago.

clusions to be drawn from the statistics of New York, Brooklyn, Boston, and Philadelphia. The following table, taken from the census reports of Dr. Billings, above referred to, gives the number of deaths from puerperal fever by months in these four cities for the six years ending May 31, 1890:

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
New York.....	215	212	264	233	209	178	176	159	143	133	146	168
Brooklyn.....	78	87	92	77	75	78	72	54	52	58	64	78
Boston.....	62	72	77	75	47	33	43	37	45	40	47	48
Philadelphia.....	35	42	56	53	40	26	28	35	30	27	25	39
Totals.....	390	413	489	438	371	315	319	285	270	258	282	333

The mortality rates based on the number of confinements would, no doubt, make the larger mortality of the winter and spring much more apparent, since the birth-rates in these cities probably agree more or less with those in Chicago, where the number of births in summer and autumn is quite as great as in winter and spring. However, the figures as given prove the same statement that was made for Chicago—viz., that more deaths from puerperal infection occur in the winter and spring. Boxall has found the same thing to be true in England and Wales. The explanation is doubtless chiefly to be found

in the fact that the houses, beds, and persons of the poorer people are not as clean in the winter and spring as in summer and autumn.

This paper is chiefly or wholly statistical in character, and is confined to a consideration of the mortality from puerperal infection. I will consider further only one or two points concerning the cause or source of infection that may be suggested by the statistics.

First, it may be noted from the tables that there has been a great improvement in the last twenty years. The date of this improvement corresponds with the date of the spread and acceptance of the teachings of Lister, and it can rightly be attributed to the knowledge we have gained of the causes and sources of infection, and the application of this knowledge to practice.

Secondly, the figures show that this improvement has now ceased, while there is still a very large mortality—a mortality that should be almost or entirely done away with. The mortality rate for the last two years is higher than for the preceding four years, and the deaths still number seventy to every thousand female deaths between twenty and fifty years.

Who is responsible for this large continuing mortality? Physicians or midwives? It is impossible to answer this question from the records. It would be practically useless to attempt to compare the birth certificates with the death certificates. Not only is the birth registration very incomplete, but many times the accoucheur omits to indicate whether he or she is a physician or midwife. Hence one can only suggest the probabilities in the case. Dr. Neely, Registrar of Vital Statistics in the County Clerk's office, informs me that probably two thirds to three fourths of the returns made to him are made by midwives. It is well known that physicians are much more careless in the matter of returning birth certificates. Now, if we assume that one half of all births are returned, and that all those not returned are in the practice of physicians, from one third to three eighths of all obstetrical practice is in the hands of midwives. No doubt the midwives sometimes fail to report births, and it would seem as near an approximation to the truth as we can reach to say that midwives attend two fifths of all confinement cases. It is pertinent to ask, How does the training of physicians compare with that of midwives? There can be no doubt as to the answer. In recent years the principles of asepsis and antisepsis are so well taught from our surgical, gynæcological, and obstetrical chairs that the teaching can not fail to influence the younger generation of physicians. On the other hand, the training of midwives has been singularly neglected by physicians, the medical schools,

and the community. Practically no safeguards to the community exist in the way of examination of midwives, control of their practice, etc. The course of instruction in the so-called schools for midwives is, so far as I am informed, very inefficient. They are largely diploma mills which graduate whatever material comes to them, without regard to mental or moral qualification. One result of this is the well-known fact that one quite important part of their practice is that of inducing abortion. Whether these facts have a bearing on the question as to the relative responsibility of physicians and midwives in the matter of puerperal infection I leave unanswered, merely suggesting that perhaps the wretched condition of our midwifery practice may be the reason why our puerperal statistics are so much worse than those of Europe. I will also add that there seems no hope for improvement in this condition of affairs until midwives are put under as strict control here as in Europe, and until the education of midwives is cared for by our responsible medical colleges.

In conclusion, I will only add two other probable causes of our very large death-rate from puerperal infection—viz., the almost universal practice of frequent internal examination of the parturient woman and the too frequent use of the forceps. These I believe to be the chief faults in obstetrical practice. When the internal examination comes to be regarded in the nature of an operation for diagnostic purposes only to be made in accordance with well-defined indications and after thorough subjective disinfection and disinfection of the patient, and when the use of the forceps is restricted to the classical indications, danger to mother or child, the puerperal mortality in the practice of physicians will be largely eliminated.

426 CENTER STREET.

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## HISTORY OF AN INTERESTING CASE OF PREGNANCY AND CONFINEMENT.\*

BY EUGENE P. BERNARDY, M. D., PHILADELPHIA.

Collapse following a labor complicated by hæmorrhage does not surprise the physician or members of the family, but if it follows a perfectly normal labor, and in such a severe form as to place the life of the patient in jeopardy, it gives a shock not easily forgotten.

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\* Read before the Philadelphia Obstetrical Society, February 6, 1896.

The patient whose history is herein given was a woman who had enjoyed throughout life excellent health, rarely, if at any time, having to consult a physician; somewhat spare in habit, inclined to the phlegmatic, cool and non-excitabile; free of pulmonary, heart, or kidney troubles, all the organs having been examined at different times in her pregnancy, yet after a perfectly normal labor, where the pains were below the average severity, and where the labor did not extend more than five hours, without any perceptible cause—unless the exhaustive heat of the day is taken in consideration—collapsed, and remained in a doubtful condition in regard to the outcome for nearly an hour.

Mrs. A. B., aged twenty-five years, slim built, of a phlegmatic nature, always enjoyed good health, called at my office in March, 1895, to ascertain if she was pregnant; had been married since November 14, 1894; examination revealed a pregnancy of three months. I saw no more of the patient until May 27, 1895. Three days previous, while entering her house, she tripped and struck herself in the abdomen; the blow was not painful. The following day diarrhœa occurred, which continued for two days; it was then followed by nausea and vomiting. Nothing could be retained on the stomach. When I saw her on the 27th she seemed to be recovering from a slight shock. Pulse small and thready, 100; temperature, 101°. Constantly retching and vomiting; abdomen sensitive to the touch. Palpation showed the child on the right side, very easily outlined. Vaginal examination: the os was closed; no vaginal discharge.

The following day the patient was somewhat relieved of the stomach trouble, but otherwise was worse; the pulse was soft and thready and beat 120 to the minute; temperature, 102°. The skin was hot and dry, the abdomen was extremely sensitive to touch; on palpation, the outlines of the child seemed apparently to be felt directly under the fingers, situated in the right iliac fossa; vaginal examination showed the head toward the right posterior portion of the pelvis; it seemed to be outside the uterus. On rectal examination, the entire outlines of the child—legs, arms, body, and head—could be distinctly traced out; apparently nothing seemed to intervene between the fingers and the fœtus but the rectal walls. The os was tightly closed.

With such a condition it was but natural that the idea of an extra-uterine gestation or a ruptured uterus was likely to be present.

First, the idea of a ruptured uterus was put aside. While the patient on my first visit seemed to suffer slightly from some shock, there were not sufficient positive signs to strengthen the idea.

Second, ectopic gestation. The patient was about the sixth

month of pregnancy; she had enjoyed excellent health throughout. In the first examination, made in March, 1895, nothing abnormal was found in the pelvis. Could an ectopic gestation continue this length of time without giving some sign of its presence? I doubt it very much.

If one of the above conditions did not exist, then there must be present the rather rare and dangerous condition, a thin, sacculated posterior wall of the uterus.

Dr. Parrish was requested to meet me in consultation the same evening between half-past nine and ten o'clock. Examination showed the abdomen extremely sensitive and tympanitic. Vaginal examination revealed the os dilated sufficiently to allow the finger to enter the cavity of the uterus; the child was found in its cavity; the pelvis free of any trouble; the posterior wall of the uterus thin and sacculated. The examination was not pushed any further, as the presence of the fœtus in the uterus solved the question of rupture and ectopic gestation.

The patient remained ill for several days, when under treatment she gradually improved. On my last visit I made a very careful vaginal examination, and found the pelvis entirely free of disease. The outlines of the child could still be made out, but not so distinctly.

The patient continued in good health up to August 4, 1895. While out walking she was taken with labor pains; this occurred about 10 A. M. I saw the patient at 12 noon; the os was fully dilated, the head presented in the right occipito-posterior position, and had passed into the pelvic cavity; labor progressed gradually; the pains were not severe; labor terminated naturally at 2.30 P. M. Very slight rupture of the perinæum occurred, which was stitched.

While the patient complained of being tired, not much attention was given to it, the feeling being attributed to the excessively warm weather; the house, being situated on the north side, received the full force of the sun's rays; the temperature of the room was excessive.

While washing my hands I heard the patient give the characteristic sigh heard in post-partum hæmorrhage. On looking around, I found the patient perfectly blanched, lips white, hands and feet cold, pulse weak—hardly perceptible; pressure over the uterus showed it to be perfectly contracted; no hæmorrhage from the vagina; vaginal examination negative; heart sound weak, but normal. The head of the patient was lowered and stimulants were given. The patient remained in this condition nearly an hour, and then slowly reacted. At 11 P. M. same day, patient entirely recovered. Convalescence was normal. A



Careful vaginal examination was made at the last visit, and the entire pelvic organs were found in a healthy condition.

During the last month (January, 1896) I have seen the patient, and her health is perfect.

221 SOUTH SEVENTEENTH STREET.

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## THE SLOUGHING OF UTERINE FIBROIDS AFTER ABORTION AND LABOR.\*

BY MATTHEW D. MANN, A. M., M. D.,

Professor of Obstetrics and Gynecology, Medical Department, University of Buffalo.

There has been considerable discussion of the question whether fibroid tumors of the uterus predispose to sterility. Hofmeier,† after studying a number of cases, concludes that in the great majority the tumors have nothing to do with preventing conception. This has never seemed to the writer to be the way in which to put it. I have always looked upon the sterility as being the cause of the new growths. I think it will be found that the larger number of fibroids, or myomas, occur in women who have either borne no children or have only borne one or two, and these at a period remote from the occurrence of the tumors. Such, at least, has been my experience.

If this be so, then it may be that the sterility, as some one has said, antedating the fibroids, stands as the cause, and for the following reason: The uterus has implanted in it by Nature the property of accomplishing upon a certain condition—namely, the presence of a fecundated ovum—a sudden and rapid increase in size. If this inherent tendency to growth be not given an opportunity of expressing itself in a natural way—by an enlargement during pregnancy—then it will manifest itself by irregular and atypical growth or growths.

Be this as it may, the fact remains that fibroids, occurring, as they generally do, in middle life, are comparatively rarely complicated by or complicate pregnancy. Still, some of the most remarkable cases have been reported where pregnancy has occurred notwithstanding the presence of an enormous number of fibroids of great size in the

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\* Read before the Medical Society of the State of New York, January 28, 1896.

† *Centralblatt*, No. 1, 1895.

walls of the uterus, with marked lengthening and distortion of the uterine canal. When this occurs, the combination of fibroids and pregnancy sometimes induces a condition which may tax to the utmost the judgment and skill of the attendant. The degree of danger to the woman and the necessity for interference, as well as the kind of interference, must depend upon the way in which the tumor has grown, its size and location.

Another fact to be considered is that in a pregnant uterus fibroids usually grow with great rapidity. The same formative activity which is imparted to the uterus by the presence of the fecundated ovum is also imparted to the tumor; so that a fibroid which has previously caused very little inconvenience may rapidly increase to such a size as to make its mere presence, plus the pregnant uterus, a serious matter.

Of late a large number of cases have been operated upon, mostly by abdominal section; but even a superficial study of recent literature will show that, although the best methods of our best operators have been brought to bear, the results have been far from good, and leave much to be desired in evolving a better method of treatment. I have no such improvement in therapeutics or surgery to offer, but wish to put on record the history of a few cases which may serve to aid in arriving at a more "learned guess" as to what should best be done under given circumstances, and when to do it.

The first point to consider is whether interference is necessary at all. In a number of instances I have seen a tumor in the lower segments of the uterus look, early in pregnancy, as though it might make the labor impossible. I have been astonished to see this same tumor, when the labor came on, get out of the way of the advancing head, ascending out of the pelvis as the child descended, thus allowing the labor to come to a successful termination. I have three times been ready to do Cæsarean section for fibroids in the pelvis, and each time the labor has been completed without any further interference than the application of the forceps.

A little more experience proves that the results are not always so favorable, and the statistics of a large number of cases show that the mortality where there has been no interference is very great. Stavely\* has collected the records of 597 cases in which nothing was done until labor came on. Of these, 220 died—a mortality of thirty-seven per cent. In 548 cases, collected by the same writer, fifteen per cent.

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\* *Johns Hopkins Bulletin*, March, 1894, p. 32.

aborted; and in 307 of those in which the maternal mortality is noted there was twelve per cent. of deaths. This would certainly show that in cases in which there is no interference the mortality is simply frightful, and would warrant the general statement that interference is usually justified. The percentage of deaths where abortion occurred is so much lower than where the labor went to term that the advisability of inducing abortion would seem also to be shown. Still, a mortality of twelve per cent. is very great, the mortality of ordinary abortions, where they are properly managed, being *nil*.

The danger after abortion, as has been proved by the records of many cases, comes principally from distortion of the uterine canal, making it impossible to entirely clear out the placenta and membranes. Small portions, being left, decompose and set up sepsis. Sepsis in a fibroid uterus is very much more dangerous than under ordinary conditions, because the same distortion of the pelvic canal which prevented the clearing out of the secundines also prevents thorough drainage and washing out with antiseptic solutions, and because the retrogressive changes, affecting the uterus and the tumor as well after pregnancy, lower the resisting power and make the spreading of the infectious process to the tumor almost certain.

That sepsis does not necessarily occur from retention of the secundines, even under favorable circumstances, is shown by a case which I saw with Dr. G. C. Clarke, of Niagara Falls, a few years ago. The patient was a woman, about thirty-five years of age, who was pregnant, and had been known to have a large fibroid for a number of years. The tumor completely filled the pelvic cavity and pushed the cervix so far above the brim in front that it could not be reached. During the third month of her pregnancy she aborted. The foetus came away, but the doctor was unable to get at the placenta, and called me to consult as to the propriety of doing hysterectomy. Her pulse and temperature were normal, and I advised waiting, and an operation should there be any indication of sepsis. This, however, did not occur; nothing more was ever seen or heard of the placenta, the patient's temperature did not go above normal, and she made a perfect recovery.

Such results as the first case must be the exception. Drs. Lusk and Kessler\* had a similar case, but the patient died of sepsis; and the other two, which I wish to report, like Dr. Lusk's case, did not have such a happy termination.

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\* *Brit. Gyn. Jour.*, p. 322, 1894.

The first case was that of a woman, thirty-five years of age, who had been married a number of years and had never been pregnant. She first came to me when she was in the second month, pregnancy having been diagnosed by her attending physician. The tumors were large and seemed to be increasing rapidly; she was very much disturbed about herself, and consulted me as to the best plan of procedure. I advised her to wait until about the fourth month of pregnancy, and if the tumors kept on growing we would then induce abortion. She was very anxious to bear a living child, but did not wish to undergo any excessive risk. I advised waiting, because I hoped in this way to obtain better involution and consequent subsidence of the tumors. Two months later she entered my private hospital. She was then in the fourth month, and the abdomen was distended to the size of the uterus at term. As it did not seem that it would be much longer possible for her abdomen to contain the tumor and the foetus, should they increase at the same rate that they had been doing, I decided that it was best to bring on an abortion.

This I found quite difficult to do; but finally uterine pains were started, and the foetus expelled. The placenta did not come away, and I was obliged to remove it with my finger and the placental forceps. The finger would barely enter the uterine cavity, so that it was not of much use. A large intramural growth upon the right side of the tumor pressed upon the cavity and made it semicircular. With the curette and forceps I removed all of the placenta that was possible, and then thoroughly washed out the uterine cavity. The patient did well for two days. Upon the third day the temperature went up to  $101.5^{\circ}$ , and the next day it went above  $102^{\circ}$ , with a pulse of 120. Repeated douching of the uterine cavity kept the temperature below  $101^{\circ}$  for the next five days. On the tenth day, after a chill, it jumped up to  $102.5^{\circ}$ , the pulse to 110. It seemed to me then that the time had come when expectant treatment should cease. Both the patient and her husband had absolutely refused to allow an operation up to this time. They now reluctantly gave their consent, and upon the tenth day after the abortion I opened the abdomen. The moment I did so there was a very perceptible odor of decomposition. I found a large tumor attached to the body of the uterus by a pedicle as large as my wrist. The tumor was nearly black and proved to be putrid all the way through. The intestines were not adherent to it, but on the upper edge the omentum was firmly attached. The body of the uterus contained a number of smaller growths. I did a complete hysterectomy, washing out the abdominal cavity and

using drainage. It was, however, too late, and the patient died within twenty-four hours after the completion of the operation. The growths with the uterus weighed nine pounds. An examination showed a long semicircular uterine canal and a small piece of putrid placenta at the upper angle.

The other case I saw in a distant city last summer. The patient was thirty-two years of age, recently married, and had not borne children. In the month of April she was found to be three months advanced in pregnancy. Her unusual symptoms led to an examination and the discovery of multiple fibroids, the largest the size of a foetal head at term. In May she had a slight hæmorrhage, subsiding after a few days of rest in bed. By the first of June the abdomen was larger than at full term, but there were no pelvic pressure symptoms, and her general condition was good. Upon the 8th of June there was an escape of the amniotic fluid. On the 13th a five-months' foetus, partly macerated, was removed from the vagina. The placenta was found to be implanted at the fundus anteriorly, the lower edge overlapping an interstitial fibroid the size of an orange in the anterior wall. The removal of the placenta was accomplished with great difficulty, as it was soft and friable, and already had a slight odor. The uterus was washed out with bichloride solution and packed with iodoform gauze. From the 14th to the 16th of June, temperature varied from  $100^{\circ}$  to  $101^{\circ}$ . Upon the 17th, the third day after the miscarriage, the evening temperature was  $103^{\circ}$ , the odor very offensive.

The patient was then seen by Dr. Hunter Robb, of Cleveland, who examined her under ether and thoroughly curetted the uterus. From the 18th to the 20th the high temperature continued, with chills. Intra-uterine douches were used; there was no pain or tympanites. From the 21st to the 23d she seemed to improve, except that the lochia still continued offensive. Dr. E. C. Dudley, of Chicago, saw her, and advised hysterectomy if the septic symptoms did not abate.

On the 24th she had another chill. On the 26th was seen by Dr. William M. Polk, of New York. From the 26th to the 29th temperature varied from  $100^{\circ}$  to  $101^{\circ}$ ; pulse, 100 to 110. No chills. Appetite and general condition better. A very rapid diminution was noticed in the size of the uterus and tumors; the lochia continued very profuse and foul.

I saw her on the 2d of July, nearly three weeks after the abortion, she having had chills and high fever the day before. Examination



showed fragments of sloughing fibroids hanging out of the uterus, evidently attached to the anterior wall, being the remains of the tumor which had been noted at the time the placenta was removed. I advised operation, and was recalled by telegram to perform hysterectomy the following day. That night, however, she was taken with pneumonia at the base of the right lung. From the 4th to the 9th of July she was profoundly ill, with no marked pelvic symptoms. The discharge was scanty and much less offensive. On the 18th there were symptoms of gangrene of the lung. Dr. Roswell Park resected several ribs, draining the pleural cavity. The patient, however, was too far gone, and died ten days later of exhaustion. The autopsy showed a gangrenous cavity at the base of the right lung. The uterus and tumors reached the size of a foetal head; the peritoneal coverings were normal, and there were no signs of pelvic inflammation. A sloughing ulcer of irregular and ragged base was noted at the site of the sloughing fibroid. There was a general purulent endometritis.

In order to show that these cases are not unique, I will quote from recent literature a few more of a similar nature :

Dr. Jacob Frank \* reports a case where abortion was induced between the fourth and fifth months. It was found impossible to induce expulsion of the afterbirth, it being hidden behind the tumor. The temperature gradually increased, and the woman developed evidences of sepsis. Four days later the placenta was expelled spontaneously. The temperature still remained high, notwithstanding intra-uterine douches. The tumor sloughed, and finally an abscess formed and opened through the abdominal wall, and through this abscess cavity the sloughing tumor was finally withdrawn, Nature having accomplished its expulsion. The patient, after a long and serious illness, eventually recovered.

Dr. Barton Hirst † reports two cases, in the first of which two fibromata were removed from a puerpera six weeks after labor. The tumors offered no mechanical hindrance to labor, as they were attached near the fundus. After delivery the woman had the symptoms of an infected endometrium, and required vigorous antisepsis to conquer the alarming manifestations of septic infection. The symptoms finally abated, but a slight rise of temperature remained. The tumor was removed six weeks after labor. Two days afterward the patient had a normal temperature and recovered.

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\* *Annals of Gyn. and Ped.*, vol. ix, p. 140.

† *Ibid* vol. v, p. 603.

In the second case there was a large fibroid reaching from the fundus of the involuted uterus to the liver. It offered no difficulty at the time of the labor, but directly afterward there were symptoms of sepsis. After waiting twelve days and finding no abatement of the fever, the tumor was removed. The operation was not difficult. There were a good many adhesions, especially to the omentum, and there was free hæmorrhage. The patient recovered perfectly.

Dr. Hirst concludes: "From these two operations and the observation of cases treated expectantly by others, in a number of instances with a fatal result, I shall always hold myself in readiness to operate on fibromata after labor as soon as I can conclude that they are infected. The low vitality of these growths makes them peculiarly liable to septic invasion. Germs which the cells of the uterine body could conquer and destroy would survive if they once got access through the lymphatics of the womb to a fibroid tumor in or on the uterine walls."

Dr. T. J. Crofford \* reports a case of a fibroid tumor complicating delivery in which the tumor sloughed. The patient was too weak for an operation at the time, but on the seventeenth day after delivery abdominal section was made. The growth was near the fundus, above the point at which the Fallopian tubes are given off. The appendages were removed and the abdomen closed. The patient recovered well from the abdominal section, but six days later septic symptoms became more formidable, the temperature going up to 106°. The lower portion of the tumor, as well as the whole interior of the uterine canal, was found to be in a septic and sloughing condition. Large portions of the tumor were removed through the vagina with scissors and knife, and the oozing surface cauterized with the thermo-cautery. The whole of the uterine canal was thoroughly curetted, irrigated, and packed with sterilized gauze. This procedure was repeated half a dozen times at intervals, until almost the entire fibroid tumor and a portion of the uterus were removed by morcellement. The patient eventually recovered.

It would seem from a careful consideration of these cases that the dangers from sepsis following an abortion where there are fibroid tumors is very much greater than ordinary. As has been so well explained by Dr. Hirst in the quotation already given, the tumors are very apt to become infected, and if so, the infection of so large a mass must increase very materially the dangers to the patient. Had

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\* *Am. Jour. of Obstetrics*, September, 1893, vol. xxvii, p. 398.

this fact been more fully appreciated in the two cases which I have here reported, earlier operation might have been insisted upon. In both cases the obstacle which so often thwarts our best endeavors—the opposition of friends—stood in the way. Nevertheless, this might have been overcome by more positive statements of danger threatened and probabilities of cure if an operation were submitted to.

In my own case I did not fully appreciate the danger of the sloughing of the fibroid; and although I knew that I was not controlling the intra-uterine sepsis, I felt that the patient might ultimately be able to successfully combat it as long as it was confined to the uterine cavity. This, however, was a wrong notion, for the intra-uterine sepsis, as I now feel convinced, was almost certain to spread to the tumor sooner or later, and that being once accomplished, the chances of successful operation were very greatly diminished.

It seems to me, therefore, that one can not too strongly state that, should sepsis occur in a uterus after labor or after an abortion, such a uterus containing fibroids of any amount or size, unless the symptoms subside very promptly under douching and curetting, an operation for the removal either of the tumor or the uterus and tumor should be undertaken at once.

It may be said that the number of cases reported in support of this view is too few. Perhaps it is. But is it not probable that many of the fatal cases in the large number collected by Staveland were due to the same cause? Unfortunately we have not got the details of all the cases, and therefore are left somewhat in doubt. But certainly it is a fair supposition that sloughing of the fibroids took place in a certain proportion. At any rate, the mortality after abortion (twelve per cent.) is so great that prompt and radical treatment would seem to be indicated. It may be urged that if the tumor be upon the inside of the uterus, it may come away by the process of sloughing, and that as long as there is good drainage there will be no necessity for interference. This, I admit, may sometimes be true. But the risks are so exceedingly great, and the opportunities for absorption so good, and the infection of distant organs is so likely to occur, that the expectant plan would hardly seem justified after sloughing has once been recognized.

In regard to cases after labor at term, the same indications would seem to hold. The greater dilatation of the cervix might make intra-uterine operation more easy, and would certainly favor the clearing out of the uterine cavity and the successful treatment of a septic endometritis. Still, the dangers of puerperal sepsis are great enough

under any circumstances, and the complications arising from the presence of a fibroid tumor would certainly make the dangers greater. While we can not lay down any rules as to the necessity for hysterectomy, the added dangers which may arise from the sloughing of the fibroid should make us stand ready to do hysterectomy should the symptoms seem urgent.

It has not been my purpose in this paper to discuss all of the relations of fibroids to pregnancy. The question is a very large one, and can not be discussed in so brief a time as is here allotted. I have only tried to illustrate by cases and to state the dangers where sepsis exists in a uterus with fibroids after abortion and labor, and to throw out some hints as to indications for treatment.

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### THE ALEXANDER OPERATION.\*

BY F. W. JOHNSON, M. D., BOSTON,

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Boston.

This operation has been severely criticised by many, both here and abroad, but, on carefully looking up these criticisms, it was found that they were wholly based on theoretical grounds, or had been brought forward by those who had not done the operation sufficiently often to be familiar with it or its results.

Those who have done the operation the greatest number of times and have seen the excellent results that follow in properly chosen cases are its most enthusiastic advocates.

Any operation done for the purpose of correcting a displacement of the uterus that may interfere with the natural course of pregnancy, or render labor dangerous or difficult, should not be done. And Dr. W. M. Polk has said the effects on subsequent pregnancy and labor must decide which operation should be done.

During the past three years abundant evidence has been collected showing that ventral fixation of the uterus has been followed during pregnancy and labor by serious and even fatal results, and unless the uterus drags away, as it almost always does, it remains immovably fixed to the anterior abdominal wall.

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\* Read, by invitation, before the New York Obstetrical Society, February 4 1896.

Opening the anterior fornix, dissecting off the bladder, and sewing the fundus forward to the anterior vaginal wall, has been followed by so many deaths and serious complications during labor that, I am told, the originator himself has abandoned the operation; but, alas! as a substitute he advises sewing the uterus to the bladder. May the good Lord translate him before he does much of such surgery!

*Indications for the Operation.*

I. For the cure of uncomplicated retroversions and retroflexions, where the patient is desirous of getting rid of wearing a pessary, which necessitates her consulting a physician at stated intervals and makes her feel that she is still on the invalid list. Patients often choose this operation to avoid wearing a pessary.

II. For the cure of retroversions and retroflexions where a prolapsed ovary or ovaries prevents the wearing of a pessary either by mechanically diminishing the transverse pelvic space, thus causing a pessary to ride obliquely instead of horizontally, or where, through sensitiveness of one or both ovaries, a pessary can not be tolerated. Bringing the uterus upward and forward out of the hollow of the sacrum relieves the backache and sagging and dragging down by restoring the circulation to normal.

This restoration of the circulation materially assists us in curing the chronic endometritis which is almost invariably present in these cases. The ovarian pain is also often relieved by restoring the circulation.

III. For the cure of retroversions and retroflexions with prolapse in the second degree and for all cases of procidentia. Doing at the same sitting, on the vaginal walls, whatever plastic operation is called for, and restoring the perinæum if necessary.

IV. While witnessing dissections for the round ligaments I was surprised to see how securely and evenly the internal abdominal rings were closed when the round ligaments were drawn out, and it occurred to me that the Alexander operation might be done for the radical cure of hernia. I have done this operation several times for the cure of hernia with excellent results.

V. In two cases where hysterectomy was refused I have done the Alexander operation to prevent incarceration of a fibroid, which threatened to take place at any time, the growth of the tumor being very rapid. In both cases severe symptoms from pressure were present. In both relief was obtained.

VI. For the cure of all retrodisplacements with *adhesions* (retroversion, retroflexion, and retrocession). The adhesions are broken



up, and, if necessary, diseased appendages are removed through an opening in the posterior or anterior vaginal fornix. After closing the opening into the peritoneal cavity the round ligaments are shortened.

Those opposed to this operation bring forward the following objections:

1. That the ligaments are often absent.
2. That there is great difficulty in finding the ligaments.
3. That it is a dangerous operation.
4. That it prevents the natural course of pregnancy, causing it to terminate in abortion.
5. That after labor the uterus returns to its former malposition.
6. That it may give rise to serious secondary symptoms or conditions.
7. That it is limited in its application.
8. That it will soon become obsolete.

I. In my experience with two hundred and forty hospital cases I have never failed to find both ligaments, except in one case. This was among the very first operated on. No doubt the ligaments were present and were of good size, but I failed to find them. Since then I have operated successfully on a patient where the operation had been attempted but abandoned on account of the inability of the operator to find the ligaments. The patient had been told she had no round ligaments, and very reluctantly submitted to a second operation. The ligaments are never wanting, provided there is a uterus. They may be very small at first, but they are there, and are of good size, nine times out of ten, after they have been drawn out.

II. The difficulty in finding the ligaments depends entirely on the experience of the operator. The description of the operation given in many text-books is misleading. The beginner is led to think that he is about to do an operation the success of which depends on his ability to recognize each layer of tissue and every vessel and nerve, from the skin down, until he has reached the aponeurosis of the external oblique muscle. Now, this is, at times, difficult to do, when the abdominal walls are thin, and it is still more difficult in a fat patient. It is no wonder that the beginner gets wound up with a round turn just at the time it would mean success for him if he had some fixed and easily recognized landmarks.

III. Alexander has operated eighty-four times and has never had a death, and he says: "I no more expect a death from it than I expect a death from the amputation of a finger."

In Boston, Dr. John G. Blake has operated between sixty and seventy times, with one death.

Dr. F. B. Harrington has operated forty times, with no death.

Dr. R. A. Kingman has operated fifty times, with no death.

Dr. F. H. Davenport has operated fifty times, with no death.

Dr. W. L. Burrage has operated thirty-five times, with no death.

Dr. Malcolm Storer has operated eleven times, with no death.

Dr. J. B. Swift has operated nearly one hundred times, with no death.

Dr. William M. Conant has operated forty-six times, with no death.

I have operated on two hundred and forty hospital cases, with two deaths. The first was due to acute septic peritonitis. The abdominal cavity was opened at the internal ring while drawing out one of the ligaments. This was among my first operations, and before the rigid asepsis now employed was used.

The second was due to pneumonia, and occurred six days after the operation. The incisions had healed throughout by first intention. In all cases operated on in Boston, most of them having been done since 1888, I have been able to learn of only four deaths—the two mentioned above and two others due to sepsis, the bladder in one case having been opened on the left side, either by the knife or a deep stitch, and the peritoneal cavity in the other.

IV and V. These can best be answered in one. Dr. John G. Blake has had three pregnancies following the Alexander, the position of the uterus being unaffected.

Seven of Dr. W. M. Conant's cases have given birth to children, one woman twice. In six of the cases the position of the uterus some months after labor was excellent. He was unable to get any data from the seventh case.

Dr. Edward Reynolds has delivered a number of women upon whom other men have previously done an Alexander, and has never seen one in which any ill result followed. He has never seen a mal-position return.

Dr. Malcolm Storer has had two subsequent pregnancies, in one of which the uterus was known to have returned to normal position.

Dr. J. B. Swift has had two subsequent pregnancies, in one of which the uterus remained in normal position. In the other the uterus was in normal position when the patient was standing.

I know twelve of my cases have been delivered at term. In each of these cases an examination found the uterus in perfect position long after the labor.

In New York, Dr. L. H. Boldt has had four patients who have borne children subsequent to the operation, and the uterus remained normal in each case.

In Dr. George M. Edebohls' cases up to July, 1893, six of the forty-two cases had become pregnant—one of them twice; seven pregnancies in all. All these mothers were examined several months after delivery, and the uterus found in normal position. Since July, 1893, five or six more have had children at term.

Dr. Paul F. Mundé has seen subsequent pregnancy in four cases—one in her fifth confinement, and one six years after the operation. No displacement.

Dr. Clement Cleveland, in his large experience with the Alexander, has never seen a malposition of the uterus after subsequent labor.

Dr. W. M. Polk has known of four who have had children, and in three of these the position of the uterus remained after delivery as before.

Alexander claims that pregnancy is favored by this operation, and that there is little danger of the return of the former malposition.

VI. I have had four cases of pneumonia follow this operation, but certainly can see no connection between the operation and the lung trouble. All four occurred in hospital practice during the winter, and at a time when *la grippe* was very prevalent. One case, noted above, died. I have had several cases of pneumonia follow cœliotomy, and in no way, as far as I can see, connected with the operation.

After reviewing the hundreds of cases that have been reported by reliable operators, I find, excluding the four deaths recorded above, that hernia is the only serious condition that may follow this operation. Only three reporters record this sequel. One has had two cases of slight hernia easily controlled by truss. The second has had one case of double inguinal hernia occurring at the fifth month of pregnancy, the uterus remaining in good position after delivery. The third had one case of hernia. I have had three cases—a double inguinal hernia in one and a left inguinal in the other; all three were easily controlled by a truss. In both cases suppuration occurred in the incisions. If the operation is carefully and successfully done, no hernia can occur, as the internal abdominal rings are completely and securely covered over by the upper anterior surface of the broad ligaments, and are also closed in by the adhesions which form around the ligaments in the canals after the operation.

Cases of cystitis have been reported, but I have seen but one such

case, and attributed it to the washing out of the bladder. For the relief of frequent and painful micturition the nurse in my absence was ordered to wash out the bladder, and a violent cystitis followed, lasting two weeks. In quite a large proportion of my cases there has been bladder trouble, showing itself in frequent and painful micturition with scalding, referred to the meatus and urethra, with suprapubic distress or dull pain. In some cases there has been tenesmus, with the forcing out of a few drops of blood at the end of micturition. In these cases the urine has been of high color, high specific gravity, and loaded with mucus and urates. Unfortunately, in almost every case there is inability to empty the bladder for the first twenty-four hours, and sometimes it is three or four days before the catheter can be dispensed with. But in some of my cases the above symptoms occurred when no catheter was used, and whenever the catheter was employed the greatest vigilance was exerted to secure cleanliness.

I have known of one case of double phlegmasia alba dolens. It followed an attempt to do an Alexander, but the ligaments were not found. Drainage was used, and was probably the cause of the trouble.

In almost all my cases where the nerve was broken or injured in drawing out the ligament there was more or less neuralgic pain in the neighborhood of the incision. At times the pain extended upward as high as the floating ribs, at times it reached over the thigh and down the sciatic nerve and its branches. At times it was a mixture of pain and numbness limited to the pubes. These pains were usually complained of after the patient was up and about or after she had got home. In these cases an attack was pretty sure to come on at a menstrual period. These attacks of pain come on every day or two, lasting from a few minutes up to one or two hours, but in the severest cases give no trouble after a few weeks. Phenacetine usually gives temporary relief.

Unfortunately, abscess formation in the incision has not been uncommon in the experience of all, but has diminished as one's experience increased. With the use of the ligature material I now employ I rarely see a stitch-hole abscess.

Pus formation in the incision delays convalescence, and often sinuses remain until the sutures put in to hold the ligaments are discharged or removed. Suppuration does not interfere with a perfect result as far as the position of the uterus is concerned. Suppuration is not dangerous if the pus is let out as soon as formed. I have never known of peritonitis or of any intra-abdominal symptoms follow sloughing in the incisions.

VII. Enough has been said above to show that the operation is not limited in its application.

VIII. In Boston it certainly will be a long time before this operation becomes obsolete. Those who see much of gynæcological practice are doing the operation more and more.

*Preparation of the Patient, Operator, Instruments, Ligature, Sponges, etc.*

Thirty-six hours before the operation eight grains of calomel are given. This is followed in twelve hours by ten ounces of liquid citrate of magnesia. The patient is kept in bed, and nothing but gruel is allowed for nourishment.

The evening before the operation the patient takes a bath. Early in the morning of the day set for operating a surgical bath is given as follows: The abdomen and pubes, after being thoroughly shaved with a clean razor, are scrubbed with soap and water for five minutes, next with equal parts of alcohol and ether in order to remove all oily and fatty substances, and finally with a solution of bichloride of mercury (1 to 1,000). The field of operation is now covered with a thin poultice of green soap (sterilized material being used), which is allowed to remain on for from one to three hours, according to the degree of sensitiveness of the skin. The soap is removed by scrubbing the parts with a sterilized brush and hot water, so as to get rid of as much epithelium as possible. A large compress (sterilized) wrung out of a warm bichloride solution (1 to 1,000) is then applied to the abdomen, and held in place with a sterilized bandage secured with sterilized perineal straps (Hunter Robb). This compress is not disturbed until the patient is on the table ready for the operation.

Two hours before the operation two ounces of whisky are given by the rectum, and one hour before administering the ether one one hundredth of a grain of atropine is given by the mouth.

In several years' experience with atropine it has been found that, when it is administered as above, seven tenths of the patients vomit but little on coming out of the ether, and, in part or wholly, it prevents the filling up of the fauces with mucus during the administration of the ether.

While the patient is being etherized the instruments are being boiled in a one-per-cent. solution of washing soda, and the ligatures are boiled in plain water. The sponges, towels, and dressings are thoroughly steamed. The room, table, and clothing have been prepared as if a cœliotomy was to be done.



The operator and assistant remove their outside clothing, substituting freshly washed cotton trousers, sterilized frock, and canvas shoes. The hands and forearms are scrubbed in soapsuds, with constant rinsing for ten minutes by the watch, great care being taken to clean the finger nails; then they are washed in a saturated solution of permanganate of potassium until of a dark mahogany color; then the permanganate stain is removed by washing them in a saturated solution of oxalic acid. Then they are washed in a 1-to-500 solution of bichloride of mercury, and finally rinsed off in hot water.

If at any time after this the hands touch anything or any part of the patient that is not aseptic, the hands are put through the permanganate and oxalic-acid solutions.

When the patient is etherized the bladder is emptied, and the vulva and vagina are first vigorously washed with soap and water and then with a saturated solution of permanganate of potassium and oxalic acid. After washing out the vagina and cleansing the vulva with a 1-to-1,000 solution of bichloride of mercury the uterus is put in extreme anteversion. As it has been my experience, backed up by the pathologist, to find chronic endometritis in every case where an Alexander operation was called for, I dilate the cervix and thoroughly curette the endometrium with the sharp curette.

The abdomen is thoroughly scrubbed with a sterile brush with soap and water, and then washed off with hot water that has been boiled and filtered. Finally, the abdomen is washed off with a 1-to-500 solution of bichloride of mercury, and again washed off with hot water.

From the time the first incision is made until the wound is closed the field of operation is kept as free from water as possible. Hot, steaming, thoroughly sterilized towels are placed around the field of operation and changed for fresh ones as often as soiled.

The instruments are taken out on a tray from the one-per-cent. solution of carbonate of sodium, in which they have been boiling for fifteen minutes, placed in a sterile pan, and covered with hot water that has been boiled and filtered.

The sponges made of folded gauze are taken from the sterilizer and put in sterile pails containing hot water that has been boiled and filtered.

Two, and only two, landmarks need be kept in mind. One only is really *necessary*, but as some operators get into the peritoneal cavity without apparently knowing the fact until they are there, the second landmark is given, the observance of which will surely keep them out.

First of all, locate the pubic spine. This is usually done with ease, and it is only exceptionally that the spine is not pointed enough to be readily recognized. When, if through fat in the abdominal walls or lack of development, the spine can not be satisfactorily located, make an incision an inch long through the skin and subjacent tissues over where you think the spine should be, and the definite location of it will be settled by the finger.

If either spine is less prominent, it is the right one.

I am thus particular because I have never seen anybody fail to find the ligament when they kept the finger and their mind's eye on the pubic spine.

The pubic spine located, cut down at once to the aponeurosis of the external oblique muscle (see that the lower end of the incision stops just over the pubic spine). This white glistening tissue can not be missed. This is the second landmark, and if the operator keeps above this he will never enter the abdominal cavity. The incision, unless the patient is very fat, need never be over two inches in length. I have often done the operation through a three-quarter-inch incision. Stop all bleeding as you go along, so that the aponeurosis may be kept white and clean as a landmark. Use as few pressure forceps as possible, as union by first intention is sought. Clean up the aponeurosis for an inch and a half from the pubic spine, and then, with the index finger on the spine, the ligament will be found without difficulty. Sometimes the external ring can be seen, usually it can be felt; now and then the intercolumnar fascia is so strong and dense that no ring can be seen or felt. In this latter case, if the fascia is cut through just in front of the pubic spine, a mass of fat will protrude, and this is the guide to the ligament.

Grasp this fat with the tissue about it, avoiding the aponeurosis on either side and the one below, unless the ligament is seen, in which case grasp the ligament and tease it out of the ring, or slit up the aponeurosis a short distance and tease the fat and tissue out of the canal. If careful to get hold of all the fat and tissue, the ligament will soon be found after a little traction on these tissues.

Separate the nerve from the ligament, being careful not to injure it by rough handling, or by sewing it to the aponeurosis when fastening the ligaments.

Draw out both ligaments until the uterus by *vaginal examination* is found to be in the desired position, then fasten them to the pillars of the ring, or to the aponeurosis if the canal has been slit up.

The slack of the ligament may be cut off near where it is fastened

and entirely removed ; or it may be folded into the wound and fastened there by the sutures that close the incision or by separate sutures ; or it may with the slack of the opposite side be tied in a hard knot, and both buried and sewed into the incisions which have been prolonged so as to meet.

I prefer to employ separate sutures in fastening the ligaments, unless they have been much crushed or bruised in getting them out. If I fear that their vitality has been impaired, the first method is employed. If the slack is cut off, the ligaments should be ligated just below the point of amputation, as each ligament has an artery and vein, and the artery is of sufficient size in some cases to give rise to serious hæmorrhage if not ligated.

Attention to cleanliness should be the same as if cœliotomy was being done, as it may be necessary to free the ligaments from adhesions throughout the whole length of the canals, and the peritoneal cavity may be opened ; then, too, healing by first intention is the desideratum. If the ligament should break, slit up the aponeurosis to where the ligament dips down to enter the internal ring ; at the internal ring search for it. If it can not be found at the internal ring it will be necessary to do a cœliotomy to secure it.

Drainage should not be used, as it is not only an admission on our part of incomplete surgery, but it is sure to be followed by suppuration, and prevents union by first intention. I have used catgut, silk, silkworm gut, and kangaroo tendon in suturing the ligaments. The same material or silver wire may be used in closing the incision. Whatever kind of suture material is used, four sutures are needed to securely fasten each ligament, two on each side of the ligament. These sutures are cut short and buried.

Care should be exercised not to tie the ligament sutures too tight ; neither should they catch up too much of the ligament, for fear of strangulation and following suppuration.

After thoroughly trying various kinds of ligature material for suturing the ligaments, I have decided that silk is by far the best. It is less irritating than silkworm gut, but, like silkworm gut, may cause suppuration months—yes, years—after the operation, with the formation of sinuses and the discharge of the ligatures. Nature tries, by suppuration, to get rid of any non-absorbable ligature material which is placed near the surface, and particularly in a locality subjected to such constant motion as the inguinal canal.

Coley has called attention to this in his admirable article on Operative Treatment of Hernia in Children.

Catgut softens too soon, is stretched out, and gives way if the strain on the ligament is at all severe.

Kangaroo tendon comes next to silk, but it is more difficult to sterilize and very difficult to keep sterile. The process of sterilizing kangaroo tendon precludes sterilizing it at the time of the operation. The silk is boiled one hour and put in alcohol. It is again boiled while the patient is being etherized and operated on.

After closing the incisions, sterilized iodoform is thickly dusted over both lines and kept in place by square pieces of sterilized gauze. Then a thick pad of sterile gauze is placed on the lower abdomen and pubes. The dressing is kept in place by an abdominal binder and perineal straps.

The patient is kept in bed two weeks. At the end of from five to seven days the sutures are removed and the lower abdomen and pubes covered with a sterilized dressing.

If possible, a catheter is dispensed with, and the nurse is instructed to see that the bladder is emptied every four to five hours.

The moment any bladder trouble shows itself, ten grains of ammonium benzoate are given and repeated every two hours. Saccharine and fluid extract of corn silk assist materially the ammonium benzoate.

The bowels are moved on the third day by a large dose of magnesia, assisted by an enema to avoid straining. After this, constipation is carefully avoided.

Slop diet is given until after the third day.

If suppuration occurs, a large opening should at once be made down to the ligament.

Poultices should be applied for twenty-four to thirty-six hours; then the suppurating cavity should be cleaned two or three times a day with peroxide of hydrogen and filled with sterilized iodoform.

Of the two hundred and forty hospital cases done by me since December, 1889, two died (one of sepsis and one of pneumonia).

There were two hundred and sixteen perfect anatomical results (ninety per cent.).

Hernia, easily controlled by truss, occurred in two cases.

Pregnancy was known to have occurred in twelve cases, the uterus being in position long after labor.

Two hundred and twenty cases had one or more operations at the time the Alexander was done.

ALEXANDER'S OPERATION WITHOUT BURIED  
SUTURES.\*

BY FRANKLIN H. MARTIN, M. D.,

Professor of Gynæcology in the Post-graduate Medical School of Chicago.

Buried sutures of any kind occasionally prove unsatisfactory after fixation of the round ligament in Alexander's operation. Catgut is not durable enough. Silkworm gut is durable, but often causes pain, and I have had these sutures become infected after remaining in the tissues for a year, subsequent to perfect union of the external wound, when their removal became necessary because of the formation of a fistula. For the same reason silk is objectionable.

To avoid the use of buried sutures of any kind, and at the same time to get perfect and more reliable shortening of the ligaments than is possible with any form of suture, I adopted the following method in a case operated on at the Woman's Hospital, February 13, 1896 :

I made the ordinary inch-and-a-half incision on either side, beginning half an inch inside of the spine of the pubes, and extended it in the direction of the anterior superior spine of the ilium. The lower ends of the incisions were about an inch and a quarter apart. I exposed the round ligaments, freed them and drew them out, each having a superabundance of about two inches and a half. I then passed a closed, pointed artery forceps from the bottom of the lower end of the wound on the right side beneath the suprapubic tissues to the corresponding point in the lower end of the wound on the left side, grasped the round ligament of the left side in the forceps, and then, by withdrawing the instrument, brought the left ligament beneath the skin, fat, and superficial fascia, between the lower ends of the wounds to the lower end of the right wound (Fig. 1). I next freed the pubic attachments of both round ligaments, drew the uterus well forward by drawing taut the two ligaments, and then securely fastened the ligaments by tying them together with a double knot, as advised by Duret, of Lille (Fig. 2).

This procedure shortened the ligaments thoroughly and at the same time fixed them. I then closed the wound with fine silkworm-gut sutures, allowing every other one to include a small amount of the

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\* Read before the Chicago Gynæcological Society, February 21, 1896.



ligaments and the edges of the external inguinal ring. The stitches were removed on the seventh day.

The advantages of this procedure are: That the success of the operation is not dependent upon, first, a non-absorbable suture, and,

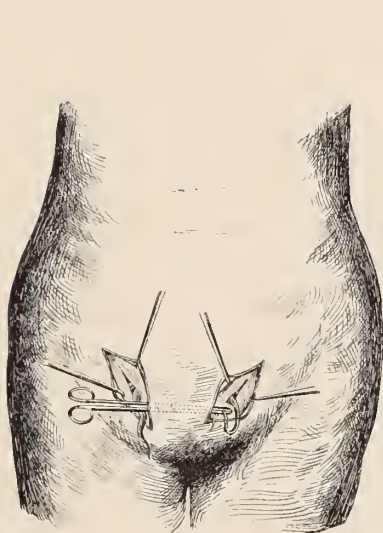


FIG. 1.

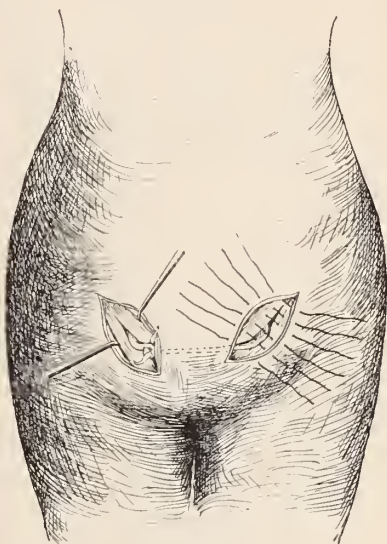


FIG. 2.

second, the uncertain durability of an adhesive attachment after absorption of the sutures.

The unique feature of this method of operating is the suspension of the uterus by tying the two ligaments together over the symphysis. The original feature of the procedure is that this is accomplished without extending the surface wound over the symphysis. This operation requires less time than is required when buried sutures are employed.

34 EAST WASHINGTON STREET.

## A CASE OF SYMPHYSEOTOMY.\*

BY RALPH H. POMEROY, M. A., M. D.,

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In the forenoon of December 5, 1895, the writer was requested by the attending physician to see Mrs. A., aged twenty-five years, in labor at term with her first child. It was stated that labor had been in progress over twenty-four hours, and that the head had as yet failed to engage. Under a misapprehension that the delayed engagement was due to hydramnion, the membranes had been ruptured manually by the physician some five hours prior to my examination of the case, the cervix having been nearly fully dilated at that earlier period. No attempt had been made to force delivery.

The patient was a robust German, weighing normally about a hundred and forty pounds, and was apparently well proportioned. Her family and previous personal history was uninformative. Abdominal examination demonstrated the foetal dorsum to the right, and the foetal heart was distinct in the right inferior quadrant. Vaginal examination revealed a vertex presenting, arrested at the brim by impact against the projecting promontory and the pubic bones. The cervix was not fully dilated, but relaxed readily when distended by the examining hand. The sagittal suture was nearly transverse, with a slight inclination toward the right oblique pelvic diameter. A fontanelle was detected high up to the left. A careful palpation of this fontanelle failed to satisfactorily develop its diagnostic characteristics. It felt very much like the posterior fontanelle, but, in view of the positive findings of the abdominal examination, and the manifest advanced ossification of the cranial vault, it was finally judged to be the bregma. The sacral promontory was unduly protuberant, and the diagonal conjugate was ascertained to measure a scant four inches, indicating a *conjugata vera* possibly as small as three inches and a quarter.

At this time a fluctuating tumor was noticed in the pelvic cavity to the right and anterior, below the presenting part. The removal of three ounces of urine by catheter promptly dissipated the point of fluctuation. This dislocation of the bladder downward is at variance with the commonly described upward displacement of that viscus

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\* Read at the January meeting of the Long Island Medical Society.

during labor. The effect of this upon the location of the urethra will be subsequently noted.

To make positive assurance of a relative disproportion, the patient was now chloroformed to relaxation and an effort made by combined external and internal manipulation to flex the head and drive it past the brim by suprapubic pressure. The effort failed, and it became promptly evident that the rigid head was pivoting on its biparietal diameter, which could not enter the flattened pelvic brim. What little descent had occurred was effected by a dipping down of the sinciput while the occiput remained suspended between the promontory and the right anterior margin of the inlet.

The case appeared to be a typical one for relief by division of the symphysis. A high forceps operation, with the application of the blades to a head that lay transverse above the brim and that showed no disposition to mold, gave prospects only of a dead fœtus and mangled maternal structures. Version may have been possible, as the head was not impacted, but it would certainly have been with a full measure of risk to the mother in view of the rupture of the membranes five hours before, and the consequent loss of amniotic fluid. That version, if accomplished, would have delivered the child intact is doubtful in consideration of the rigid cranial vault and the constricted passage, especially as the diameters of the head proved to be above normal. Craniotomy on the viable fœtus was not to be thought of.

As the patient lived in a suburban section of the city, something over two hours more was consumed in preparing for the operation. Meanwhile a quarter of a grain of morphine contributed to the patient's equanimity and quieted the pains. At the time of the operation the patient's pulse was below 90 and the fœtal heart distinct. The writer was assisted by Drs. Palmer Townsend and L. C. Ager and an incompetent nurse. The patient was anæsthetized, and placed on a kitchen table with the thighs flexed and secured by Dickinson's sheet sling. The site of the operation was prepared for aseptic work, including a thorough cleansing of the vagina with green soap, followed by mercurial irrigation. Instruments were sterilized by boiling, and the field of operation was surrounded by towels wrung out of a mercurial solution. An ounce of urine was drawn by catheter.

A three-inch incision was made through skin and fat, terminating below at the summit of the pubic joint. Blunt dissection exposed the superior pubic ligament. A probe-pointed bistoury was passed behind the joint until the tip could be felt through the vagina at the level of

the subpubic ligament. Cutting upward and forward with a slight sawing motion carried the knife through the joint, which parted half an inch with a perceptible shock. Before passing the blade behind the symphysis a sound was introduced into the bladder to locate the urethra. As noted above, the bladder was displaced downward with the anterior vaginal wall. The urethra was directed downward and backward—as the patient lay—pointing toward the coccyx, and had no proximity to the back of the joint, as would have been the case had the bladder been displaced upward, as usually observed. The hæmorrhage from the wound was insignificant, but iodoform gauze was packed into it between the ends of the bones as a protection during the subsequent manipulations. Moderate pressure applied to the head from above now caused it to sink into the cavity of the pelvis in position right occipito posterior, the pubic bones separating about two inches in the process. Forceps were applied through the dilatable cervix, and the head brought down to the pelvic floor. Rotation of the occiput to the front was effected in the grasp of the forceps, the instruments being removed and reapplied three times as rotation progressed. Some difficulty was experienced with the anterior lip of the cervix, which showed a tendency to prolapse, together with the anterior vaginal wall. When sufficiently dilated it was finally pushed back over the occiput.

One hour was occupied from the time of the first incision to the delivery of the child. The child was asphyxiated, but responded promptly to Schultze's method of resuscitation. The uterus relaxed after the expression of the placenta, and a rather sharp hæmorrhage followed which was controlled by bimanual compression of the uterus. There was a bilateral laceration of the cervix and a fourchette tear requiring two sutures. Catheterization of the bladder now presented a few drachms of clear urine, proving the bladder uninjured.

Pressure applied to the sides of the pelvis and trochanters failed to bring the parted bones in close contact, a quarter-inch space remaining. The deeper portion of the wound was closed by several interrupted catgut sutures. The skin was united by sutures of silkworm gut, and a powder of iodoform and boric acid, equal parts, dusted on the line of the wound. The gauze dressing was retained by a double spica bandage, and over this, encircling and constricting the pelvis, several turns of a three-inch strip of adhesive plaster were applied, the lower margin on a level with the trochanters. The ordinary binder was worn over all. The patient was put to bed in generally good condition, though the pulse had risen to 110.

The puerperium was marked by no more disturbing feature than a slight incontinence of urine persisting through the first week. A considerable vulvar œdema extended over the same period. The highest temperature was  $101.8^{\circ}$ , on the fourth day; the pulse ranged from 100 to 120 for a week. One antiseptic vaginal douche was administered on the fourth day. The sutures were removed on the eighth day; there was no suppuration. For the first two weeks the patient was kept mainly on her back, with her hips resting on a small, hard "excelsior" bolster on either side, supporting the lateral halves of the pelvis from the trochanters to the iliac crests. After the second week—all dressings having been removed—a fitted belt of heavy drilling six inches wide was worn. Perineal straps retained the lower edge of the belt just below the trochanters. The pubic region was protected by a felt pad. Wearing this constricting band, the patient was given the freedom of the bed for the third and fourth weeks, at the end of which time she was allowed to stand.

A critical examination at the end of six weeks showed that there was no bony union at the symphysis. With the patient standing or lying on the back a distinct sulcus less than a quarter of an inch wide was felt along the anterior aspect of the articulation. The sulcus disappeared when she lay on the side. This observation would appear to indicate the advisability of the lateral decubitus as the preferred posture for a period following this operation, instead of the dorsal. In shifting the body weight from one leg to the other there could be noted a slight corresponding upward deviation of that side of the pelvis on which the weight was thrown. This lack of rigidity of the pelvis was barely perceptible by the patient when paying heed to the matter. It is not sufficient to cause any disability or sense of insecurity in locomotion. A month later the sulcus was barely perceptible and the ligamentous union was evidently much firmer.

The external measurements of the pelvis were as follows: External conjugate, 7 inches; interspinal, 9 inches; intercrystal, 10.25 inches.

The child, a female, weighed nine pounds, stripped.

The measurements of the cranial diameters were: Biparietal diameter, 4.25 inches; suboccipito-bregmatic diameter, 4.25 inches; occipito-frontal diameter, 5 inches; occipito-mental diameter, 5.75 inches; fronto-mental diameter, 3.75 inches.

The cranial bones were well ossified and the bregma was reduced to a quarter of an inch in its longest diameter.

The operation of symphyseotomy in this country has perhaps passed the stage of interest as a novelty, but it is doubtful whether as



yet the profession at large has accepted it as having any proper place in the list of obstetric expedients. The statistics, as to both immediate and ultimate results, are marred by including cases in which the operation was resorted to in a tentative or experimental spirit. Not until the operation can be looked upon as a procedure to be judiciously selected to meet the sum of the instant requirements, will the statistics be a full criterion of its usefulness.

The field of symphyseotomy is undoubtedly very limited. The indication will arise least frequently as a matter of pure election before labor, and most frequently in the emergency of actual labor; for while pelvimetry may give us warning of probable difficulties, we find that just below the limit of the normal the mechanical factors of a successful passage of the superior strait are largely *relative*, and are not to be estimated arbitrarily in terms of centimetres or fractions of an inch. And in the emergency, as we usually meet it, many considerations besides the mechanical are to be weighed—the amount of previous manipulation and consequent local trauma, the general condition of both mother and child, and the facilities for establishing asepsis.

My justification for presenting the above case in detail rests upon my conviction of the absolute fitness of the operation for the case in hand. Certainly the recital of the history of even a single case of impeded labor, brought to the happiest termination by the selection of symphyseotomy as the solution of the problem of the studied facts, should be a wholesome testimony to the merit of the operation and to the progress of scientific obstetrics.

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## COMPLICATIONS IN ABDOMINAL SURGERY REQUIRING INTESTINAL ANASTOMOSIS.\*

BY A. VAN DERVEER, M. D., ALBANY, N. Y.

Believing that the subject to which this paper refers will present a more practical and forceful statement of true facts in regard to intestinal anastomosis, I have thought best to report the following three operations as a type of cases coming to the abdominal surgeon, and

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\* Read before the Medical Society of the State of New York, January 29, 1896.

claiming his most earnest attention as to the best procedure for the benefit of his patient :

CASE I.—Mrs. A. S., aged forty ; widow ; referred to me by Dr. John De Witt, of Saugerties, N. Y. ; history of a rapidly developing abdominal tumor for a period of six months. Epileptic seizures for ten years.

*Operation, January 14, 1895.*—Multilocular ovarian cyst, left ovary ; papillomatous ; unilocular ovarian cyst on the right side, removed with very little trouble. On removal of tumor on left side, many adhesions were encountered and a coil of small intestine completely imbedded in growth. Necessary to do intestinal resection. Eight inches of ileum removed ; ends brought together by Murphy button ; operation exceedingly simple. Patient nervous after operation ; no vomiting ; catheter necessary ; hypodermic use of morphine, as patient was previously accustomed to its use. Third day, free movement of gas ; eighteenth day, well-formed movement of bowels. Two days later, two decided convulsions ; partially delirious for over a week. Nineteenth day, while in care of her daughter, patient had three movements of bowels, which were thrown away without examination. Very likely button passed at this time, as it was never found in stools afterward. Patient made a remarkable recovery ; is now, January 18, 1896, in absolute health, and has gained much in flesh. No convulsions in ten months ; abdomen soft, and recovery apparently perfect.

CASE II.—Referred to me by Dr. Crandall, of Fort Edward, N. Y. Mrs. J. J., aged thirty-four ; three children. Family history indefinite. Hernia at umbilicus size of a hen's egg at first confinement ; never reduced. Confinements since, normal. Bowels always constipated. October 3, 1895, while straining at stool, suddenly taken ill ; tumor increased in size ; vomiting and much pain. Saw patient at 4 P. M. Monday, October 7th. Learned she had vomited contents of stomach previous Sunday, and once at 12 M. Monday ; yellowish substance ; portions dark-colored. Passed some gas *per rectum* in past forty-eight hours. Three cathartic pills had been given, but did not move the bowels ; moderate amount of morphine required to relieve pain. She entered Albany Hospital, at 3 A. M., October 8th, and operation was done at 10 A. M. Tumor, size of a cocoanut, in immediate vicinity of umbilicus ; portion size of a silver dollar gangrenous. Incision revealed strangulated hernia ; many old and firm adhesions. Peritonæum intensely congested, very dark in color. Loop of small intestine, gangrenous for ten inches, included in tumor. Vessels in

mesentery secured; V-shaped portion of mesentery removed with intestine, also large portion of omentum and entire sac formed of peritonæum. Murphy button used for end-to-end anastomosis. Two Lembert sutures outside of button. Wound closed by silkworm-gut sutures; no drainage. After operation patient vomited dark-greenish fluid and complained of severe pain in back. At 3.15 P.M., on the 9th, large movement of bowels, evidently from portion below point of anastomosis. Some nausea and vomiting afterward; two more movements same day, then much better afterward. Bowels continued to move freely, and at 5.30 P.M., on the 21st, thirteen days after the operation, the button passed. This patient made an uninterrupted recovery, and returned home in excellent condition. Has been well since.

CASE III.—Referred to me by Dr. Crombie, of Mechanicsville, N. Y. Mr. C. D., aged twenty-five; Italian laborer; about one year a resident of this country. At 11 A. M., Thursday, January 9, 1896, while lifting heavy stones, stated he felt something "give way" in lower part of abdomen on right side. He was obliged to stop work; nausea and vomiting at once, and a tumor in right inguinal region presented, which became very painful. An attempt at reduction was made, but not successful. He was taken to his Italian quarters, accommodations being very limited, where his companions gave him some treatment, and the patient stated that he had a small movement of the bowels after the accident, accompanied with great straining and forceful effort. Vomiting continued, and he was in much pain most of the time. No physician called until Sunday night, January 12th, when Dr. Crombie saw him and recognized at once a serious case. The vomiting was of a dark, yellowish material, at times spinachlike, with a decided fæcal odor. Patient brought to Albany Hospital early Monday morning, January 13th, with a temperature above 100°; pulse, 110; eyes sunken; expression of face that of exhaustion, with much pain; abdomen distended; hard, boardlike sensation and all the evidence of septic general peritonitis. Anæsthetic given at 11 A. M. Very slight effort at reduction of tumor, believing it an oblique inguinal hernia on the right side, not extending far down into the scrotum. Testicle greatly retracted and drawn up close to external ring. Operation proceeded with at once. Layers covering sac very œdematous and in places dark and gangrenous. Sac contained a large amount of dark, bloody fluid, and was in a gangrenous condition. On further exploration, the tumor was found to have made its exit out of the internal ring, filling the inguinal canal, and, instead

of working its way out of the external ring, had become an interstitial hernia, extending beyond the median line to the left, made up of a part of the smaller intestine, and all extremely gangrenous. The constriction at the point of exit of the gut was very tight. On loosening up the adhesions the spermatic cord was found gangrenous, together with its vessels, and it became necessary to remove the testicle on that side. Constriction was relieved and coils of intestine withdrawn, to see as to amount of resection necessary, and in loosening up adhesions much time was lost. When resection had been completed, the vessels in mesentery secured, etc., an hour and a half had been consumed, the case being an exceedingly tedious one. The Murphy button was employed, but a few moments consumed in introducing it, and the anastomosis completed. The patient presented well-marked septic peritonitis. After the sac had been thoroughly removed, the upper portion of wound brought together, and the lower portion of the gangrenous walls packed with strips of iodoform gauze, the patient was placed in bed at the end of an hour and three quarters from beginning of operation. Reacted well, and at 8 P. M. his pulse was fairly regular (120), temperature about normal, vomited but little, and was very comfortable. Expressed himself as feeling much easier, but during the night he presented more marked symptoms of collapse; rectal injections were made use of; hypodermics of strychnine and nitroglycerin, warmth applied to extremities and to lumbar regions, but after 6 A. M. of Tuesday, January 14th, he sank rapidly, and died at 9 A. M.

Post mortem showed incision in right inguinal region packed with iodoform gauze. Gauze being removed, stump of sac of hernia presented, intensely inflamed, but not adherent. Incision carried upward, and counter incision made transversely across abdomen about an inch and a half below umbilicus. The flap being laid back, the omentum was seen intensely congested and firmly adherent to intestines. Small intestines inflated and prominent. The anastomosis seen superficially, and union fairly good, except on superior surface, where gangrenous slough presented. Intestines were adherent and covered with plastic lymph in places. In vicinity of anastomosis intestines firmly adherent. Union of mesentery secure, but presented a very dark, almost gangrenous, appearance. Button intact; a mass felt in lumen of intestine immediately beyond the button. Button, with section of intestine and mesentery being removed, fluid found to pass through button. No obstruction along course of intestine. Large intestine completely collapsed. Liver slightly congested,

otherwise normal. Stomach contained some fluid material. Gall bladder full. Spleen enlarged and somewhat softened. Parietal portion of peritonæum ecchymotic, and glistening appearance lost in places. Appendix normal, curled behind cæcum. No hæmorrhage anywhere to be seen. Posterior surface of right internal abdominal muscle gangrenous near the sac of hernia.

These three, with other cases I might report, illustrate fairly well conditions that present at a time when the abdominal surgeon is called upon to do an intestinal anastomosis, not infrequently the patient being in a state of severe shock, the operation being a tedious one.

The active, earnest, honest operating surgeon has now presented in such cases the important problem, What is the best course to be pursued for the benefit of his patient? If he has been in practice a quarter of a century or more he naturally thinks of his early training, and considers as to the rapidity with which he can perform end-to-end anastomosis, or circular enterorrhaphy, by means of the Lembert or Czerny suture; but at the same time there is crowded in upon his mind many other methods that have been suggested, and from all of which he must select that which will give the most rapid and perfect result, shortening the operation as much as possible. He can not deny that the prolonged operation of anastomosis lessens the chances of his patient's recovery. It is evident that surgeons have not been altogether satisfied with the older operation of circular enterorrhaphy without any mechanical contrivance. Those of us who have looked up this subject somewhat earnestly during the past few years have had brought to our notice the fact that many surgeons have been seeking aid in this direction of some mechanical contrivance for many years.

In the London *Lancet*, October 19, 1895, is given an article on An Early Method of Intestinal Approximation, reported by Leonard Gamgee, of Birmingham. He states that in looking up the subject in South's *Translation of Chelius' Surgery*, published in 1847, he found on page 464 of Volume I the following: "In complete division of the intestine Denans introduces into the upper and lower end of the gut a silver or zinc ring, thrusting it in upward about two lines from each end; he then brings the two ends together over a third ring, of which the two springs retain the external rings. The included ends of the intestines mortify, and the rings, becoming unfastened thereby, are discharged by stool after they have united the serous surfaces in contact. This experiment in the dog has most successful results."



Recently I heard a most excellent report of a case of intestinal end-to-end anastomosis by Dr. Bedford Brown, of Alexandria, Va., given at the meeting of the Southern Surgical and Gynæcological Association, held in Washington, November 12, 1895, in which he stated he had made use, thirty years ago, of a solid cylinder of cocoa butter introduced into the caliber of the intestine, over this rapidly bringing together the peritoneal surfaces of the small intestine by the Lembert suture, a perfect result following, the substance taking care of itself afterward by evacuation of the bowels. However, as this case was not reported at the time, the profession was not able to take up and make use of this very happy and useful suggestion.

As I have stated in a previous paper, perhaps there is no part of surgery that, within the past quarter of a century, has presented so much in theory, and in which there has been so much disappointment, when practical use has been made of the suggestions, as in the field of abdominal surgery with all its complications. In other words, how much we have changed from time to time our methods of treating many complications, and yet, withal, there have come certain reliable advances that have met all requirements for which they were indicated, leaving permanently in our possession the comforting thought that a grand progress in the sum total has been made; that we can treat all manner of pathological conditions, traumatisms, malformations, etc., of the intestinal tract and abdominal cavity with less embarrassment, perhaps, than any other part of the body, and yet there are very few portions of the human system upon which we operate where more rapid thought and better judgment is to be employed than in abdominal surgery. The best methods for meeting this and that complication must be adopted at once. There can be no great delay; temporary dressings can not be applied for the time being; expectant surgery has no field here. We must meet the emergencies at once. Therefore, in presenting the above cases, with such remarks as each one seems to call for, I am desirous simply of placing on record facts which may assist in future operations, and aid us in our final determination of certain procedures when conditions arise that require their employment.

There can be no doubt but that the consensus of opinion to-day among operating surgeons, dealing with abdominal cases, is, that when we come to intestinal anastomosis, our patient is not infrequently in a serious condition as regards strength, as was the case particularly with Case III, just reported; therefore, all things being equal, that method which will give us the most rapid and surest man-

ner of procedure is the one to claim our attention. Rapidity of action at such a time is absolutely necessary, and yet with it must be combined thorough safety.

The most pronounced efforts at a solution of this question of intestinal anastomosis were revived and brought out by Dr. Senn in *The Journal of the American Medical Association*, vol. xxi, p. 215-218, in the introduction of the decalcified bone plates. If one has given careful attention to the subject since, he can not but be convinced that as yet we have not reached perfection. I believe this to be an axiom in surgery that, while there are many operations or methods suggested, and many mechanical contrivances, either by experimenters or actual employment, yet none seem to be greatly in the lead for the cure of some particular surgical lesion—there is yet something additional required. It is not necessary for me to refer to my direct experience with the bone plates. I believe it is in keeping with the opinion of other operating surgeons that constriction afterward of the opening takes place, and obstruction follows in many cases within a certain number of months.

Following this method, we had the rubber ring suggested—rubber plates, segmented rubber rings, solid rubber rings, rawhide plates, Spanish turnips, American potatoes, elastic ligatures, the Abbé ring of catgut (a most admirable suggestion), the decalcified bone tubes of Jessett, of England; the bone bobbins of Robson, of England; Dawburn's vegetable plates, Littlewood's bone plates, gelatin and cartilage plates, Dr. Davis' catgut mats, Matas' silk ring, the Murphy button, etc. Some have had no advocates outside of their inventor; some have had a wide range by being adopted by other operating surgeons. None have obtained a very great hold upon the many operating surgeons, possibly Abbé's catgut ring having received as great indorsement as any one method; but even Abbé has discontinued its use and other methods of this kind because of the gradual constriction of the original opening, and he now depends entirely upon the suture, evidently preferring lateral anastomosis. Of these many suggestions, the Murphy button is still in the advance in this country. On the other hand, we have had some practical forms of suturing suggested; of these, possibly the most scientific and perfect in its way being the Halstead method, and yet it has received very little indorsement from the profession at large. Another suggestion, that of McCann, of making use of the Lembert suture in a modified form; the same in reference to Connell, of Milwaukee, of silk or catgut suturing in two knots. All methods of suturing have been more

or less criticised by operating surgeons, the main objection being that much time is required in the introduction of the suture. Even Abbé's method of lateral anastomosis has not to any great extent been followed out by many surgeons. Davis, in his very excellent article on Anastomosis without Mechanical Contrivances, gives indorsement to this method, but at the same time prefers his own use of suturing, making it a more modified operation.

Maunsell's method of anastomosis, without the use of foreign substances, really presents the most reasonable and successful line of procedure of anything we have yet had, and my impression is that it is likely to come into more universal use than any other form suggested, except it be the one to which our attention has been called by Rutherford Morison, of England, and Grant, of Louisville, Ky., each one presenting a form of forceps, the latter of which I show you through the kindness of Dr. Macdonald, of this city, together with these plates, believing it is a method that is likely to receive recognition; however, when we come to consider all methods of intestinal anastomosis that are to be employed in the complications that present in abdominal surgery, such as gangrene from hernia, such as portions of intestine adherent to abdominal tumors that must be removed, and in which resection becomes necessary, resection of intestine for malignant disease, for lacerations—all conditions that call for removal of a portion of the intestinal canal, or for anastomosis of one portion of the intestinal tract with another, or to the gall bladder or stomach—we have had, since 1892 more particularly, our attention called to a mechanical contrivance called the Murphy button that is certainly standing the test well in a certain class of operations, and of these operations I believe the three cases here reported are very fair types. Even this method has many objections presented, although the statistics now accumulating, and the tables we have given, enable us to judge somewhat definitely as to its true value. It is true that cases have been reported where the button has dropped back into the stomach, has found its way into the gall bladder instead of going on down the intestinal tract, but these conditions are to be avoided in the former instance by making the anastomosis with the posterior wall of the stomach, and in the latter by the use of a larger sized button.

I quote from an article in the *Medical Record*, December 28, 1895, the following on the dangers of the Murphy button: "Death occurred in one case from plugging of the button with hardened fæces. In another case the button was removed from the proximal side of the anastomosis by a second operation. Again death occurred from intes-

tinal gangrene at the site of the button ; possibly from too close approximation of the edges, or its extreme size, weight, etc." It is evident from the above that the danger of retention of the button is a real one, notwithstanding the successful cases reported. Parkhill, of Denver, reports in the *Boston Medical and Surgical Journal*, October 17, 1895, a case where entero colostomy was performed for the exclusion of a cæcum and ascending colon, which were riddled with fæcal fistulæ, as a result of appendicitis, the largest sized Murphy button being used. Three months later operation done for excision of diseased cæcum, when opening at site of anastomosis was found so small as to barely admit the tip of the index finger as far as the base of the nail. Circumference of finger at that point two inches, while that of button employed was three inches and a quarter. This is believed to be the first time amount of contraction of lumen, after anastomosis on living subject, has been measured, and the question whether such contraction will continue is an interesting one. The writer, however, still further states that, contraction or no contraction, this was the correct procedure in this case, as patient's condition precluded any more time-consuming method.

Again, in the same journal, Abbé reports a case of anastomosis in strangulated hernia—five inches of gangrenous bowel being removed—where patient died forty-eight hours after. Autopsy showed that weight of button had caused it to gravitate to bottom of pelvis, causing a sharp kink at site of anastomosis. Dr. Rushmore thought that the gut must have been paralyzed by the obstruction or the muscular coat would have been able to force the contents through lumen of button and straighten out kink.

Again, on the contrary, its advantages, as set forth by so conservative a surgeon as Frederick Treves, of England (*Chicago Clinical Review*, September, 1895), must carry added importance to this mechanical contrivance.

In looking up this subject carefully, perhaps it would not be out of place to state its advantages as set forth by Dr. Murphy himself in the London *Lancet*, August 17, 1895. He states that seven points require attention in attempting to obtain union between two pieces of bowel. They are : 1. Coaptation of surfaces, and the union should be between similar tissue—that is, the muscular coat should join the muscular coat, and the mucous membrane of one portion should be in contact with the mucous membrane of the other. 2. Adhesions should form immediately. 3. Sufficient caliber should be left at the point of union. 4. Permanent organized adhesions should result. 5. The line of union

must not contract to any great extent. 6. The process should be aseptic. 7. The method employed should take the least possible time. Surely we must admit that these conclusions are to the point when conditions present to us as operating surgeons where we can employ the Murphy button !

The use of the Murphy button has been shown to possess inherent advantages which should restrict its use to those cases in which it is necessary to hasten in order that the patient may survive the shock of the operation.

It can not be made use of for every form of intestinal anastomosis, which I believe statistics prove to be the case. As was stated by Dr. Reed, in a recent discussion of this subject at the meeting of the Southern Surgical and Gynæcological Association, the Murphy button is at the present time the best mechanical contrivance for circular enterorrhaphy in operations upon the small intestines, where the contents of the bowel are in a fluid state, but that it is not a proper device in operations upon the large intestines, as the caliber becomes plugged with hardened fæces, and is likely to be the cause of obstruction. After careful study of this subject, I am inclined to draw the following conclusions : That in incised wounds of the intestines, in whatever way they may have occurred, in a single gunshot wound made by a weapon of small caliber, we will still adhere to the Lembert, Czerny, or some modified form of suture without the use of mechanical devices. That in doing other more serious operations the element of time must be taken into consideration.

Levings, of Milwaukee, has made some very interesting experiments (*Chicago Clinical Review* for November, 1895), and gives us the following table as to the length of time required in performing anastomosis by different methods :

Cushing's suture, end-to-end union.....	2 minutes	3 seconds.
Connel's suture, end-to-end union.....	2	" 9 "
Murphy button, end-to-end union.....	3	" 22 "
Czerny-Lembert suture, end-to-end union..	5	" "
Senn's plates, lateral anastomosis.....	9	" 52 "
Abbé's suture, lateral anastomosis.....	14	" 5 "

It will be observed that in his case the Murphy button was not the speediest method ; yet, taking it all in all, it is certainly holding its own and making a pronounced impression upon operators, and, until something better is suggested, is likely to be the preference. Certainly for anastomosis between the gall bladder and duodenum it is



the most perfect device we have at present. The same can be said of anastomosis between the stomach and smaller intestine by using the oblong button instead of the circular one.

I am convinced that the Maunsell method is likely to claim careful attention in the near future, where the button is not to be made use of, and where we have to make an anastomosis in the large intestine, or of the small and large intestine.

One is surprised to see the lack of confidence shown in the Murphy button abroad.

In a letter from Dr. Hurst, a former student of mine, a graduate of our college, now a pupil and assistant of Prof. von Bergmann's at Berlin, received January 25th, he states as follows: Prof. von Bergmann has used the Murphy button on seven dogs with fair success, but only once on any of his patients. In this case—one of incarcerated hernia—the intestine, on opening hernial sac, was found gangrenous, and resection plainly became necessary. About seven centimetres of ileum removed, leaving no trace of gangrenous tissue. Medium-sized Murphy button then inserted, gut returned to abdominal cavity, wound closed and dressed, and patient placed in bed. Temperature gradually increased, and patient died on fifth day; no autopsy.

Prof. von Bergmann states his reason for not trying again was that to him the idea was not a plausible one of putting a piece of metal in the "belly." He has a whole set of the buttons, but has no use for them.

Prof. Sonnenberg, professor of surgery at the Moabit Krankenhaus, said he had used the button three times, as follows: First patient died on third day; second patient passed button on eleventh day and recovered; third patient died on fourth day. He further states that the two patients who died were very weak, having been sick some time previous to the operation. He is favorably inclined to the button, but avoids using it owing to the general prejudice in regard to it in Germany.

## CIRRHOSIS OF THE OVARIES.\*

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The gynecologist meets with other diseases in the female genital organs than pyosalpinx, ovarian abscess, and uterine fibroids that require surgical intervention, one of the comparatively infrequent, most protracted, and painful diseases of the ovaries being cirrhosis—the title of this article.

The literature on the subject I find to be very meager and unsatisfactory. While the pathology in this condition, in the great majority of instances, has its origin in a chronic ovaritis (some claiming the exanthematic hardening of the ovaries to be of a non-inflammatory origin), its permanency justifies an individuality, and its clinical history and pathology a separate chapter in our works on gynecic diseases.

I have within the last year operated for the relief of this, the most painful of ovarian diseases, in five subjects. They have all recovered from the operation, and four of them have been permanently relieved of their sufferings, restored to comfort, and made happy, useful wives and mothers. The fifth, operated on a few weeks ago, is convalescent, and I feel safe in predicting that the ultimate results in her case will be equally as satisfactory.

The ovaries are sometimes affected with an interstitial sclerosis as a result of numerous small follicular dropsies, which are, of course, of a non-inflammatory nature. In the post-inflammatory sclerosis or interstitial ovaritis, like pathological processes in other organs, the fibrous tissue predominates and the ovules are either compressed and strangled, so to speak, in their normal location, are choked on their way to the surface, or perchance, after a painful effort, find their way to the surface and rupture.

Where the ovules fail to reach the surface, owing to the denseness and unyielding character of the fibrous tissue, the condition is one of sclero-cystic ovaritis. One of the specimens I have here should be so classified.

Early in the history of this process the ovary looks much like a

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\* Read before Jackson County Medical Society.

normal organ ; but as the process progresses, as is usual, the organs contract at the expense of the vascular stroma or medullary substance. The true gland structure atrophies, yet the ovary in some instances is larger than normal, owing to the increase of the fibrous elements.

Batley, of Georgia, in 1872, performed for the first time in the history of abdominal surgery what was and is yet called a normal oöphorectomy. Many of his cases operated on for the relief of pain, and supposed to be the removal of normal organs, have, in the light of more modern and advanced pathological knowledge, been demonstrated as belonging to this classification of ovarian diseases. The compression of the delicate and painful nerve filaments in the ovary, by the disappearance of at least the greater part of the ovarian structure, save the dense, fibrous trabeculæ, accounts for the sickening, compressing, and almost constant pain in many of these cases, and from the same source the reflexes so often manifested where there exists a constant irritation to branches of the ganglionic nervous system.

I would not have my hearers misunderstand me in this matter, for I am dealing with diseased and not sound organs. I am not advising the removal of any organ where it is not a constant source of trouble and a menace to the health and comfort of the patient. Dysmenorrhœa is a term that should be banished from the nomenclature of gynæcic diseases, as jaundice has been left out of the classification of hepatic diseases, since its source has been definitely traced to well-marked pathological processes ; they are both only symptoms. In women who cease to menstruate prematurely, often the cessation may be traced to cirrhosis (atrophy), the result of a chronic ovaritis or an acute exanthematic disease affecting the ovaries, as smallpox, measles, or mumps. To this same source may often be traced the irregular, scanty, or painful menstrual periods of young girls.

As a result of the fibrous contractions in a cirrhotic ovary, the surface of the organ is made to resemble the convolutions of the brain. The majority of women suffering from cirrhotic ovaries are sterile, or will give a history of a long interval between or since the last birth. In many of these cases the Fallopian tubes are also affected, not by a suppurative process, but by a form of inflammation that results in an obliteration of the tubal caliber—an atrophic salpingitis—the same process taking place in the vermiform appendix, as described by Senn and others, as appendicitis obliterans. A few of these cases cease to menstruate altogether, and thus Nature cures the case, unless there exists firm surrounding adhesions, the remains of old inflammatory

processes ; these, of course, are to be dealt with in the usual surgical manner if there exist indications for a surgical procedure.

The all-important question to the patient is what can be done for the relief of her suffering.

CASE.—Mrs. B., aged forty-two, mother ; last child eleven years old. Menstruation regular in time, normal duration three to five days, and free from pain. Not a dysmenorrhœa or painful menstruation. Her best days during her menstrual month are those during and for several days following her flow. Nine or ten days before her expected menstrual period a pain of a sickening, throbbing, and compressing character developed, and lasted with unremitting severity up to the day preceding the flow, ceasing with its development, to return again at the beginning of the usual painful period. This pain has made her an invalid by its protractedness. She has not acquired the morphine habit, because she is the wife of an intelligent practitioner, who foresaw the dangers attending the prolonged occasional administration of an opiate, and used other analgesics.

This is a short history, but it is all there is to say about the case, save to assure you that all other symptoms inquired for were negative.

An examination revealed small, tender ovaries ; no evidence of old, purulent tubal disease. The case was diagnosed as one of cirrhotic ovaries ; the correctness of this opinion was fully established at the operation, and the justifiability of the operative procedure has been thoroughly proved by the results in the case. The pain has not returned, and I feel safe in predicting a permanent cure in the case. There are some features in this case worthy of comment.

The absence of any history of an exanthematic disease demonstrates that a cirrhotic ovaritis may take place without this cause ; the absence of any evidence of old tubal disease shows that the process did not originate from this source. The left ovary had the cirrhotic process the most marked, and it must be remembered that it is the left testicle that is oftenest found atrophied, one of the most frequent causes in the male being a varicosity of the spermatic veins. It was noticed in this case that the pampiniform plexus on the left side was very greatly enlarged and tortuous. It might be claimed that this disease of the blood-vessels was the source of the pain, but the character, time, and duration of the pain would negative this deduction.

That this atrophy of the ovaries was of a post-climacteric character was disproved by the regularity of the menstrual function and by

the microscopical as well as macroscopical appearance of the structure of the organ.

This woman being forty-two years of age and menstruating regularly would not warrant waiting for a natural menopause to occur, for many women continue menstruating for six years beyond this age; this would imply six years more of continued suffering and invalidism.

I know of nothing to relieve this suffering save the removal of the cause. The results of this cause, be they what they may, are of a permanent character, and in an organ not essential to comfortable existence the only remedy for the relief of suffering produced by its presence is the removal of the diseased organ.

Many of these patients will present the usual uterine syndrome, and a diagnosis is arrived at by exclusion of other conditions giving rise to these pelvic manifestations.

It is with no certainty that the patient can tell when her symptoms began, as the process is a gradual one. Arrested involution is responsible for many cases of this disease. The all-important point in these cases to the gynæcologist and the patient is the present condition and the methods of relief.

The pain in the cases I have had under my care has been of a sharp, darting, sickening, or throbbing character, in one or both ovarian regions, but most frequently and of severer character in the left ovary. This pain has its greatest intensity from a few days to two weeks prior to the menstrual period, and is usually accompanied with the usual nervous reflexes, as hysterical manifestations, backache, etc. In many of the cases, owing to the intimate nerve connection with the lumbar ganglia of the spinal nerves, the pain will be found running down the front and inner side of the thigh, genito-crural and anterior crural, and in the hip joint through the obturator nerve connections with the sympathetic. Dyspareunia is in many cases absent, owing to the fact that the ovaries are small and are not prolapsed, and may not be very tender.

Early in the history of these cases they may be treated, with some relief of the pain, by electricity, but the results from this agent have not been at all satisfactory. All cirrhotic ovaries do not require removal. It is in cases where other means have failed, and where the woman has been made an invalid or her suffering becomes almost intolerable, that the removal becomes imperative. Each case is an individual one, and should be studied and treated as such.



## ARTIFICIAL DILATATION OF THE NON-PREGNANT UTERINE CANAL.\*

BY F. A. L. LOCKHART, M. B. EDIN.,

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Before entering upon the subject of my paper I wish to thank you for the honor you have done me in inviting me to read a paper before you. It is almost impossible, at the present day, to find any subject in gynæcology which has not been written upon time and again, and my object in choosing the following was a desire to show that a painful and troublesome gynæcological affection may frequently be cured not only without the use of the knife but also without the use of even an anæsthetic.

Artificial dilatation of the unimpregnated uterus has been practiced for many years. One sees in text-books that Sir J. Y. Simpson, on observing the gradual dilatation of a cervix by a polypus which was forcing its way through it, was struck with the idea that it would be feasible and useful to dilate the cervical canal for diagnostic and therapeutic purposes. This would lead you to think that he was the first to employ this method of diagnosis and treatment, but, in Simpson's own writings, he speaks of the great success of a Dr. Mackintosh in treating obstructive dysmenorrhœa by dilatation of the cervical canal. Mackintosh used a series of graduated bougies which were straight, but Simpson had them slightly curved so as to agree with the uterine curve. This occurred over fifty years ago, and, although gynæcology has made such strides since then, you will agree with me, later on, I hope, that this old-fashioned method of treatment is the best for a certain class of cases of dysmenorrhœa.

This dilatation is for two purposes—viz. : 1. Diagnostic, as where you wish to ascertain the cause of hæmorrhage from the uterus. 2. Therapeutic, as where you wish to apply medicaments to the internal surface of the uterus.

The time chosen for this treatment depends entirely upon the effect which is desired. If it is simply for the purpose of exploring the uterine cavity, the best time is toward the end of menstruation,

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when you will find that the cervical tissues are soft and dilatable. Braithwaite, of London, in an able article upon the Artificial Dilatation of the Unimpregnated Uterus, says that "the time chosen should be the last day of the period—just when the discharge is ceasing or has ceased." This is his advice, no matter for what purpose you are dilating, but it is probably not the best practice when your object is the cure of obstructive or spasmodic dysmenorrhœa. This symptom (for dysmenorrhœa merely is a symptom) is due to the contraction of the circular muscle fibers in the vicinity of the internal os. In order to cure this trouble, you will require to overstretch and tire out these fibers. If then you pass your dilators at a time when these fibers are soft and in a passive condition, it appears to me that you fail in that thorough stretching or tiring of the tissues which is necessary for a successful result. Therefore, where you are endeavoring to cure spasmodic dysmenorrhœa, the time to choose for dilating is between the periods. In fact, this is the best time for all therapeutic dilatation, except in cases where you suspect the presence of retained products of conception and wish to remove them.

Cervical dilatation is produced either gradually or rapidly, and each method has its advantages and disadvantages. Gradual dilatation is performed at several sittings, but requires no anæsthetic, whereas rapid dilatation is completed at one sitting, but complete surgical anæsthesia is required, as is also rest in bed for a few days after it.

Rapid dilatation is produced either by means of graduated bougies or by the glove-stretcher form of dilator of either Goodell or Sims. Of the two latter, Sims' is the best, as it has three arms instead of two, and therefore dilates the cervix more equally. In using either of these instruments one has to exercise great care and to keep turning them in all directions, so as to avoid tearing the cervix. They possess one great advantage over the graduated bougies for rapid dilatation in that they do not exert any upward force upon the uterus, while with graduated bougies great traction has to be exerted in a downward direction by tenaculum forceps, which is frequently dragged out, tearing the cervix and suddenly releasing the uterus, which is then apt to be thrust suddenly upward.

Phillips records thirty-one cases in which he performed rapid dilatation by means of Hegar's dilators, seventeen being for dysmenorrhœa and fourteen for the removal of retained products of conception. The average time occupied was 34.12 minutes. He speaks very highly of the use of these dilators, but the work can be

done in half the time with perfect safety and almost no after-disturbance by the Goodell or Sims instrument.

Gradual dilatation is usually effected in one of four ways :

I. Aseptic gauze is torn into narrow strips and packed firmly into the uterus. This is removed in twenty-four hours, when the uterus will be found somewhat dilated. The cavity is repacked on successive days until sufficient dilatation has been produced.

II. Tents of elm, laminaria, sponge, or tupelo may be used, but are not to be recommended, as it is almost impossible to render them aseptic, and they are painful. Elm and laminaria are best, although as late as 1891 Swayne, of Bristol, wrote that he had never had any trouble from the use of sponge tents, although in twenty years he had used them nineteen times to induce premature labor. At the time of writing he had given up using the sponge tents for the above purpose, but he still employed them to dilate and plug the cervix in cases of incomplete abortion.

III. Another method is by electrolysis, using a bulbous-pointed electrode attached to the negative pole as the intra-uterine electrode. For this purpose you require but low currents, not using more than eight or ten milliampères. The writer has never used this method, so can not vouch for its usefulness.

IV. We now come to the fourth and much the best method of producing gradual dilatation of the uterus—viz., by means of graduated bougies. These are made of glass, vulcanite, or metal of various patterns. For all practical purposes, the vulcanite ones are those to be recommended, as they are cleanly, light, durable, and cheap.

Lawson Tait introduced a set of straight vulcanite cones of varying sizes which screwed on to a stem of the same material. The distal end of the stem was perforated to allow of elastic bands passing through from a belt. The patient wore this instrument, and the dilating pressure was produced by the elastic bands. These are absolutely dangerous, as you can not regulate the direction of the force, and so might very easily perforate a soft uterus ; nor have you any guarantee that the patient will not make some sudden movement by which the stem may be thrust violently upward and do her untold mischief.

Hanks' or Hegar's are the best instruments to use for this purpose, and, of the two, I prefer Hanks', as being more easily manipulated. These, as you will remember, consist of a straight stem, at each end of which is a curved bougie, two inches and a quarter long, with a shelf or shoulder at the base. They are numbered from 9 to 18, but, as

this latter is scarcely large enough for some purposes, Mr. J. H. Chapman has had Nos. 19 and 20 added, which make the set very complete.

In my own practice, they are used with the patient in the Sims position. The dilators are immersed in carbolic lotion (1 to 40) and the patient's vagina is well swabbed out with the same solution, using a Sims speculum. After well lubricating the dilator, it is passed just as you would pass an ordinary uterine sound, but much more slowly, using the index and middle fingers of the right hand to guide it to the os. At the first sitting I begin with No. 9, and pass as many as the patient can readily stand. If Nos. 9, 10, and 11 are passed at the first sitting, I begin with No. 10 at the next, the treatment being given twice or three times a week, according as you find the uterus very sensitive or not. A glycerin plug, with or without ichthyol, is introduced into the vagina close up to the cervix, but is withdrawn by the patient on the morning of the next visit, when she also takes a hot douche. These sittings are continued until the desired result is attained, the number varying in each case.

The *indications for rapid dilatation* are (a) operations on the interior of the uterus—*e. g.*, curetting, removal of tumors, or retained products of conception, etc.; (b) digital exploration of the uterine cavity in cases of pathological hæmorrhage from the uterus when other means of stopping it have failed.

For *gradual dilatation* they are (a) endometritis, to allow of applications being made to the endometrium and for drainage; (b) dysmenorrhœa and sterility, when due to spasm or closure of the cervical canal, especially at the internal os.

*Contraindications* are (a) pregnancy, (b) acute metritis or endometritis, (c) acute or subacute inflammation of the ovaries and tubes.

In all forms of dilatation of the uterine cavity strict antiseptic precautions must be observed or you will be almost certain to have more or less septic trouble.

CASE I.—Mrs. H., aged twenty-nine years, multipara. Complaints were pains in both ovarian regions, at times shooting down the inside of the thighs; pain in the lower part of the back; leucorrhœa; and pain at the menstrual periods for the last six months. Menstruated first when fourteen years of age; always regular. Twenty-eight-day type, lasting four days. Two children, youngest being four years old. Had one miscarriage at six months, three years ago.

*Per vaginam* cervix is felt to be small, hard, and torn on the left side. Fundus is enlarged and bent forward. A sound can only

be passed one inch into the cervical canal, probably on account of acute flexion and stenosis.

*Treatment.*—Cervix softened by hot douches thrice daily and a glycerin plug at night for ten days, at which time the sound could be passed with ease upon exerting gentle but firm pressure. Bougies were now used, No. 10 being the only one employed at the first sitting, and Nos. 9 and 10 at the second, after which menstruation came on and was quite painless. Altogether, this patient received five treatments with the bougies, the largest passed being No. 15, and the use of glycerin plugs was continued all through. She remained well for six months, when there was a slight return of the pain; but two treatments by dilatation and the application of iodine to the endometrium, together with the use of glycerin plugs, cured her. This was five years ago, and her family physician, as well as patients whom she has sent to me, report that she is still quite free from her aches and pains.

CASE II.—Mrs. S., aged thirty-six years, multipara. She consulted me on June 27, 1892, for headache, especially just before her periods, and also pain in the lower part of her back, both complaints having existed for some years.

Vaginal examination revealed antelexion of the uterus and slight hæmorrhagic endometritis. The cervix was dilated up to No. 12 bougie, iodine was applied to the endometrium after this had been wiped clean, and a glycerin plug was inserted into the vagina. The patient only received five other treatments, in which, however, iodized phenol was used instead of iodine. After two treatments this patient expressed herself as being very much relieved, although she was not quite cured when I lost sight of her at the end of August, when I went away for my vacation.

CASE III.—Mrs. McL., aged twenty-eight years, unipara. This patient's complaint was hæmorrhage from the vagina between her periods. Hæmorrhagic endometritis, with very small cervical canal, was diagnosed.

This patient received four treatments, consisting of dilatation of the uterine canal, the application of iodized phenol to the endometrium and a glycerin plug in the vagina, together with one drachm of compound syrup of hypophosphite (Fellows') in water thrice daily. The result was a complete cure.

CASE IV.—Mrs. B., aged twenty-six years, unipara, consulted me for indefinite pain in the pelvis, which had lasted for about four years, but which was unaffected by her periods.



*Per vaginam*, the os was felt to be gaping, the cervix soft, and corpus uteri anteflexed, enlarged, and prolapsed.

This lady required nine treatments by dilatation, the application of iodized phenol to the endometrium, and the constant use of the glycerin plug before she was cured.

CASE V.—Mrs. H., aged thirty years, unipara, the child being five years old. This patient complained of intense pelvic pain coming on two days before the flow, and confining her to bed. The menstrual fluid clots. She had one miscarriage before her child was born.

*Per vaginam*, the uterus is felt to be anteflexed, with profuse leucorrhœa pouring from the os. Left ovary is prolapsed, large, and tender.

After the ovaritis had been reduced by iodine, hot douches, and the glycerin plugs, treatment of the anteflexion and endometritis was begun by dilatation, etc., as in the other cases. After thirteen sittings the dysmenorrhœa was completely cured, the anteflexion was much less acute, and the ovary was higher up, smaller, and less tender. Since ceasing treatment this patient has had two pregnancies.

CASE VI.—Mrs. B., aged thirty-five years, multipara, all of her children being born dead. This patient complained of metrorrhagia. The uterus was low down, and the seat of endometritis, metritis, and the vaginal walls lax. The left ovary was enlarged, prolapsed, and tender. The ovarian tenderness was first relieved, as in the last case, after which the uterus was treated by gradual dilatation and application to the endometrium of iodized phenol nine times, a cure resulting.

The above half dozen cases have been taken at random from my case book, and may be considered examples of cases treated by the method described in this paper. All of the patients have been heard from recently and remain quite well, and sufficient time has elapsed to judge of the result, as the patients have received no treatment for from one to four years.

This treatment is not to be considered a panacea for all of the ills that female flesh is heir to, but will undoubtedly be found beneficial in the vast majority of properly selected cases. It may be argued by some that it was the glycerin and iodine, and not the dilatation, which effected the good results. To these persons I would say, let them try the two forms of treatment, when I am sure that they will be convinced that the dilatation, by stretching the fibers and allowing of a free discharge of all contents from the uterine cavity, is the chief factor in producing the happy results.

## ON THE TREATMENT OF WOUNDS, WITH ESPECIAL REFERENCE TO THE USE OF ACETANILIDE.\*

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### PRELIMINARY.

After cleansing the parts involved, *water is not used*, either during or after operations. The following exceptions to this rule may be mentioned :

*During* operations on the endometrium, vagina, and rectum the parts are kept clean by irrigation (Note 1). *After* such operations irrigation is not advised unless infection symptoms appear (fever, pain, abnormal discharge). The parts are dressed by drying the vagina and placing against the cervix a teaspoonful of boric acetanilide ; the external parts are daily dusted with the same powder, and protected with gauze, an aseptic towel, and a diaper.

In general (not localized) suppurative peritonitis the abdomen is flushed out with great thoroughness by salt solution (three drachms to two quarts) at 120° F. (Note 2).

For *ligatures*, catgut is used exclusively (Note 3).

For *sutures*, catgut is used where there is no strain on the lips of the wound. Where strain is to be met, fine silver wire is employed. Silver wire is germicidal, and may be buried, or partly buried, with perfect satisfaction. The deep fascia in a suppurating wound (appendicitis) may be brought together by silver wire, which, as the wound heals, will be covered over. All other unabsorbable sutures will in such cases produce sinuses. For provisional sutures, silver wire is unequaled ; its presence is not noticed by the tissues, and it can be tightened or loosened at pleasure (Note 4).

An exact approximation is made by the use of the smallest possible number of sutures. The greatest care is taken to avoid tension. Wherever possible, in making incisions, the lines of cleavage (so fully described by Kocher) are followed. Observing this rule, it is astonishing to note how readily enormous incisions are closed. They seem to fall together almost without assistance.

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\* Read before the Philadelphia Obstetrical Society, February 6, 1896.

## ON THE DRESSING OF WOUNDS.

*Aseptic sutured wounds* are covered with four layers of gauze saturated with acetanilide glycerin (1 to 40) (Note 5); over this is placed a clean towel; and the whole dressing is protected by paraffin paper securely held in place by numerous bandages.

Should symptoms of wound infection occur, the external parts are carefully disinfected; as many sutures as can be spared, without allowing the wound to gape, are removed. With a director and a sinus forceps, openings about the size of a No. 20 American catheter are made between the lips of the wound and into the fluctuating and indurated points. A loosely fitting rubber catheter is inserted into each pus cavity, and acetanilide glycerin is cautiously injected. If in doubt as to the locality of the infective process, the surgeon may, by using a number of boiled catheters, bring the glycerol into contact with the entire raw surface. The injection of the glycerol may be repeated daily if necessary, but it will generally be found that one injection, if promptly made, will jugulate the septic process. The wound is dressed as usual with glycerol. By this method—through the affinity of glycerin for water—a current is established from the depths of the wound toward the surface, and thus an exceedingly efficient drainage results. Not only is any liquid which may lie between the wound surfaces sucked out, but the tissues themselves are also drained. Patients thus treated do not, as a rule, remain in the hospital any longer than those whose wounds follow an aseptic course.

As acetanilide is a poison, the physician is warned to use great caution in making these injections. Not more than half an ounce of the 1-to-40 glycerol is used daily until experience has demonstrated the safety of the treatment in each case.

*Open aseptic wounds* are dusted slightly with boric acetanilide (1 to 6), and are kept slightly moistened with acetanilide glycerin—just sufficient to prevent the dressing from adhering. Gauze and paraffin paper are used as in the first class. Healing is hastened by the judicious use of silver nitrate. Skin grafting should be more frequently employed in these cases.

*Septic Wounds.*—As an illustration, we will take a large retro-peritoneal tubercular abscess, reaching from the spinal column around on the side to the rectus muscle. An incision about two inches long is made with two fingers, septa are gently broken down, and the fungosities cautiously wiped away. Pus is wiped out, and the cavity is dried by sponges on stalk holders. Finally a catheter is inserted to

the deepest part of the wound, and half an ounce of acetanilide glycerin is injected. Provisional silver sutures are inserted and superficial dressings applied as in Class 1. The injection is repeated daily. Unless cyanosis or other acetanilide symptoms appear, the quantity used is gradually increased to one or one and a half ounce. Within a week suppuration will have ceased, and it will be impossible to insert the catheter without using undue force. The wound is now loosely closed by the provisional sutures and dressed as in Class 1.

#### SUMMARY OF RESULTS.

Where it has been possible to bring acetanilide glycerin into intimate contact with a suppurating surface (not involving a bone), suppuration has ceased almost immediately. Abscesses of the breast have been cured in a week, large retroperitoneal tubercular abscesses in two weeks, and extensive abscesses produced by perforative appendicitis in two weeks. Aseptic sutured wounds have, without exception, healed primarily. Aseptic open wounds have healed more rapidly than under any other treatment.

#### ILLUSTRATIONS OF THE USE OF ACETANILIDE IN WOUND TREATMENT.

1. A young man had had the anal sphincter cut in two places in an operation for the cure of a tubercular fistula by Dr. Z. Incontinence resulted. About one fourth of the muscle was apparently miss-

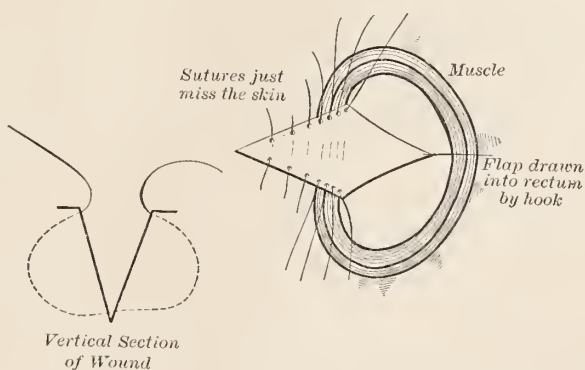


FIG. 1.

ing, and there was a long and deep cleft in the anal margin. An incision twenty-nine millimetres (an inch and an eighth) deep was made

in such a way as to bare the muscle ends and to make a substantial flap. (See dotted line, Fig. 1.)

Traction was now made by a tenaculum in such a manner as to invert the flap into the rectum. Numerous deep and half-deep sutures of fine silver wire were now passed by a full curved needle, missing the skin and getting a firm hold on the muscle ends, and an attempt made to close the wound. A gap of four millimetres (four twenty-fifths of an inch) remained between the sides of the wound and the muscle ends. The bowels were not disturbed for three days. After that, for two weeks the rectum was washed out daily through a rectal tube, the fæces being kept soft by a diet of well-cooked gruel and meat and by the administration of compound licorice powder. The wound was kept buried with boric acetanilide, over which was laid a piece of gauze moistened with acetanilide glycerin covered by waxed paper. At no time was water allowed to come in contact with the wound; slight friction with gauze saturated with acetanilide glycerin served to keep the parts clean. The blood clot between the ends of the muscle organized without suppuration, and the patient left the hospital in three weeks with an excellent sphincter.

2. A large abscess of the breast was opened by an incision admitting the index finger, employing the infiltration method to prevent pain; septa were broken down and the cavity mopped out. For four days acetanilide glycerin was injected daily, and the wound dressed with acetanilide gauze. On the ninth day the patient returned with the parts soundly healed to the bottom. The physician found it necessary to see the patient but twice (on the first and ninth days); the treatment in the interval was carried on by an unskilled relative.

3. An appendicitis wound which was pouring out a copious stream of pus mixed with fæcal matter was dressed with acetanilide glycerin and acetanilide boric powder. In twenty-four hours there was not more than one quarter as much discharge. Rapid healing followed under a continuance of this treatment.

4. A sinus, following suppuration in an abdominal wound, had been subjected during two months to various methods of treatment, including thorough curettage, packing with iodoform gauze, and rest in bed for three weeks. Slight, if any, improvement resulted. It was packed to the bottom with boric acetanilide powder, and healed in forty-eight hours. After three months it remained healed.

5. In three cases cracked nipples healed at once under the following treatment: Acetanilide vaseline (1 to 5) was applied thickly to the parts, which were then carefully protected by gauze, also thickly



smearred with acetanilide vaseline, and by waxed paper. No water was at any time applied. When the child desired to nurse, the nipples were gently wiped with absorbent cotton.

A fourth case proved very instructive. In a consultation case the physician was advised to try the above plan for the cure of some very severe nipple cracks.

After ten days the patient was seen again, and, to our chagrin, we found that the cracks were increasing in extent. Careful inquiry elicited the information that the attending physician, with a view to a more antiseptic treatment of the case, had ordered the nurse to wash the nipples thrice daily with boric solution. The error was now rectified, and within forty-eight hours the nipples were well.

1. The results obtained by irrigation during operations on the endometrium, vagina, and rectum have been so nearly perfect that we have not ventured to change to the dry method. In the treatment of puerperal sepsis thorough irrigation of the uterus (preceded by curettage), repeated daily for from one to seven days, according to circumstances, we believe to be invaluable and by far the best means of removing infectious material. Clean cases of confinement and of rectal and vaginal surgery need no douching.

2. McBurney has obtained such brilliant results in general suppurative peritonitis by thoroughly flushing the peritoneal cavity by passing gauze strips, radiating from the wound in all directions, throughout the peritoneal cavity, and by leaving the wound wide open, that it would seem to be a matter of conscience to follow him. One point is frequently overlooked. The irrigating tube, which should be very long and large, should be passed close to the parietes to the extreme limits of the peritoneal cavity before the water is turned on. Thus the current is toward the wound and infectious material is washed out. Unfortunately, irrigation is not infrequently practiced in such a way as merely to diffuse the infectious liquids throughout the cavity. The operator should have on hand a number of aseptic irrigating tubes; should he wish to wash out a portion of the cavity which is not certainly infected, he should not use a tube which has just passed through a deposit of pus.

In stating that silver is a germicide, I follow Miller, Behring, Uffelmann, and Bolton. Halsted and Schede have utilized the researches of the scientists mentioned to the great benefit of surgery (see *Am. Jour. of the Med. Sci.*, July, 1895, p. 13). Thus modern science comes to the support of a suture material which the untaught genius of Sims and Emmet long since popularized in America.

Behring showed that the products of some bacteria dissolve metals more readily than the products of other bacteria.

Uffelmann showed that cholera germs were dead in seventeen minutes after they were smeared on a copper coin, and in twenty-five minutes after they were smeared on a silver coin.

Bolton (whose articles in Johns Hopkins Hospital publications, and in the *International Medical Magazine*, December, 1894, are well worthy of careful study) shows plainly that the effects described are "due to a solution of the metal in the medium," and that "putting bits of metal on the cultures is really equivalent to the addition of a small amount of that salt of the metal formed by the action of the nutrient medium."

Bolton himself made a very large number of experiments, of which the following will serve as an example: Pétri plates were inoculated with *Staphylococcus pyogenes aureus* and a piece of silver foil put on them. Immediately around the metal first appeared a clear zone of one or two millimetres, and, second, a very narrow intensified zone—that is, a zone thickly crowded with bacteria.

Bolton seems to consider the action here as inhibitory rather than truly germicidal. Cadmium, zinc, and copper also inhibit germs.

Some exceedingly interesting experiments were made by Dr. H. Vincent (published in the *Revue d'hygiène*, quoted by the *Med. Record*, December 21, 1895, p. 897).

In a cold temperature the germs of typhoid fever and the Friedlander bacillus are killed in eighteen hours if placed on a sterilized copper or silver coin, and the pyocyanic bacillus and that of green diarrhœa in twenty-four hours. At the temperature of a pocket—about 36° C.—the bacilli of typhoid fever and of blue pus, of diphtheria and the streptococcus, are destroyed in less than six hours. The bacilli of diphtheria are among the most tenacious, and in cold will live three days on silver and six days on bronze. Gold is less antiseptic, and the Eberth bacillus will live five days and that of diphtheria six days on a gold coin in a temperature of 20° C. At a damp temperature of 36° C. the destruction of the microbes is very rapid, and that is the temperature which often prevails in the pockets of clothes.

Even the daily papers now refer to the antiseptic action of silver, and laughingly quote it as an argument in favor of free coinage.

3. Catgut is thus prepared: Cut "C" gut (following the schedule of Schaum & Uhlinger, Glenwood Avenue and Second Street, Philadelphia) into pieces thirty inches long; make into loose coils, secur-

ing each coil by a readily undone loop ; drop into a sterilized preserving jar ; cover with Squibb's ether for twenty-four hours ; then cover with sublimate ether (1 to 500) for forty-eight hours ; then soak in absolute alcohol for two weeks. The gut may be used from absolute alcohol or it may be used from a solution of resin and alcohol (a drachm to a pint), making it less slippery, or from eighty-five-per-cent. alcohol, to which glycerin has been added in the proportion of 1 to 5. A sufficient quantity is picked from the jar (with boiled forceps) just before the operation. Under no circumstances is any of this replaced in the jar. With these precautions catgut has been used by us without septic accidents, in all parts of the body, in more than one thousand cases.

4. The preparations of acetanilide used are as follows :

*a.* Acetanilide glycerin is made by mixing forty parts of cold sterilized glycerin with one part of acetanilide powder (not crystals), and rubbing thoroughly with a pestle. No heat must be used in making this glycerol lest crystals should deposit. Should suppuration persist, notwithstanding the use of the glycerol, it is increased in strength by the gradual addition of a solution of acetanilide in alcohol, twenty grains to the ounce, commencing by adding one ounce of this alcoholic solution to four ounces of glycerol.

*b.* Boric acetanilide is made by mixing thoroughly powdered boric acid, six parts, with powdered acetanilide, one part. It is stored in glass bottles holding seventy grains. Not more than one of these bottles is to be emptied, in the case of an adult patient, in twenty-four hours. It is dusted over wounds so as to form a thin layer. If used in large quantities it cakes and produces irritation of the skin and sometimes superficial ulceration. If for any reason it is used in large quantities, it must be covered with gauze and with paraffin paper to prevent caking.

*c.* Acetanilide vaseline is made by rubbing powdered acetanilide, one part, with "cream-white vaseline," twenty parts. It is very useful as an application to cracked nipples and superficial lesions generally. Using precautions against poisoning, the strength of this ointment may be increased.

*d.* Acetanilide gauze is made by dusting 17.5 parts of boric acetanilide over 82.5 parts of sterilized gauze (making a 2.5-per-cent. acetanilide gauze), in the form of hemmed strips, ten feet long and one inch broad. These strips are then rolled like ordinary roller bandages, stored in sterilized air-tight jars, and used in place of iodoform gauze.

*e.* Acetanilide oil has been used in a few cases as an injection in

diffused disease of the rectum, and is well borne. It is made by shaking together acetanilide and olive oil, 1 to 40.

5. It is well known that cœliotomy wounds are very liable to supuration in those with very fat parietes. In several cases perfect results have ensued from the following somewhat heterodox procedure : The peritonæum is closed by continuous catgut ; silver sutures with a needle on each end are then passed through the remaining layers ; with a few very fine silver sutures, barely catching the edges and disturbing the relations of the parts as little as possible, the superficial sheath of the muscles (or the linea alba) is exactly approximated. A strip of gauze saturated with acetanilide glycerin is inserted here and there down to the sheath of the muscles. Now the through sutures are adjusted, drawn, and the wound closed and dressed with acetanilide glycerin. In two days the gauze drains are removed. The parts fall at once together, and in a week the wound is well healed.

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## EDITORIAL.

### SPECIALTIES AND THE GENERAL PRACTITIONER.

There is no question of the fact that the domain of the *specialty* is being more and more invaded each year by the general practitioner. Of no specialty may this be more truly said than of gynecology. It is well to consider the causes of this incursion and its effects, first, upon science, then upon the specialist and, finally, upon the general practitioner himself. The relation of the patient naturally presents itself in the consideration of the effect upon science.

A great causative agent is the fact that the specialties are overrun with very young men. So soon as an interne has graduated from a special hospital, he acts upon the assumption that he is entirely fitted to become a specialist in that branch. But, having no practice and being, generally, poor, he can not afford to wait for special work only; hence he calls himself a specialist, for the extra fee there is in it, and gladly accepts anything else which comes along at the same time. Of course this is a parody upon specialism, for no medical man believes—and indeed not even the intelligent interne himself—that a short eighteen months in a special hospital could possibly create him an *expert*; the seed there planted has hardly had time to germinate, and time and experience are necessary to prove if the soil even was worth the planting.

The cause next in importance is produced by the short-sighted effort on the part of some specialists to attract the general practitioner, in the matter of consultation, by a disloyal or more generally



ignorant effort to belittle their own specialty and to show how easy it is for every one to become his own specialist. We read through an article recently, by a supposed gynæcologist, in one of our contemporaries, entitled "The General Practitioner his own Gynæcologist." This is an example of what we mean. The author, in our opinion, did not show any evidence in his article of being a gynæcologist, but this made the article in question none the less vicious in its intended effect upon the general physician.

A third cause is the accepted temptation to the general practitioner whose practice is large, especially if it be surgical on the one hand or mainly obstetrical on the other, to add to his sphere of usefulness (*sic*) and to retain for himself the *special* fees which his conscience, under other circumstances, would suggest his surrendering to another, whose whole time and work were devoted to the acquiring of special knowledge.

These are the causes why there are so *many* specialists in gynæcology and at the same time practically *so few*.

Now let us consider the scientific effect of these combined causes. The most evident one to-day is *confusion of thought and practice*. If a man's education has been that of general surgeon, the only important part of gynæcology to him is that which needs extirpation. It is the quickest, neatest, surest way and leaves nothing behind to suggest a doubt as to the competence of his special knowledge. If, in deference to old-time prejudice and the importunities of patients he operates upon those very "minor" conditions which are connected with laceration of the cervix and rupture of the pelvic floor, he adopts that operation which is simplest and quickest of execution. The principle upon which the particular method used is founded, anatomically and physiologically, is of little consequence; if the operation fail to benefit the patient, hysterectomy can always be done and—the patient is cured! The *obstetric* gynæcologist, on the other hand, deals principally with the vagina and what it contains. If after labor he finds the cervix or posterior vaginal wall torn, he puts in enough stitches to close the wound and then feels that his patient is safe from the *special* gynæcologist. The injury to the pelvic fascia, which he does not see, does not trouble him, for his point of view is that of the obstetrician. The result of this want of a *gynæcological* standard and consequent confusion of practice induces a rather contemptuous opinion of the specialty in the minds of those who acknowledge their ignorance of it. Not only the general practitioner, but the layman as well, is beginning to think that as a specialty it is somewhat of a humbug and that its

so-called professors are actuated by other motives than purely scientific ones. It is not difficult to trace this disposition of the outside mind to the three causes we have enumerated. As to the effect upon the patient the oft-heard tale, "Oh! doctor, I have been doctoring for years and have been to five or six specialists, who promised to cure me, but I am just as bad as ever," speaks for itself.

What inducement is there to the true specialist to devote himself exclusively to his branch when he sees men all about him boldly attempting the work which they do not understand but which they assure their patients they "can do as well as any specialist"? He knows that not one patient in a hundred will ever come to realize that the hysterectomy which followed repeated failures at plastic work in ignorant hands was totally unjustifiable and might easily have been obviated. He knows that when the proper plastic operation is properly applied, failure is owing *always* to the operator and not to the operation. Unfortunately, patients themselves can not know this and the operator himself is generally too ignorant or too human to make this unpleasant acknowledgment to himself. The real specialist, therefore, finds nothing but discouragement in the pursuit of special study and is subjected to a ruinous and unjust competition.

As to the general practitioner who dabbles in gynæcology and "rushes in where angels fear to tread," the harm which he does, with barely a smattering of the most superficial gynæcological knowledge, can not be calculated.

And yet he is hardly to blame for attempting that which he does not in the least understand when there are so-called gynæcologists who assure him that the whole subject is "quite easy" and that he "is a fool to pay to another a fee which he might keep for himself." If he would only confine the application of this advice to the giver of it, what a boon for many a suffering woman!

No, we can not deny that the general medical man has much excuse for not recognizing the wheat in so much chaff and for putting to practical use the proverb, which fits so aptly our specialty to-day, that "when doctors disagree, disciples are free."

## REVIEWS.

AN AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. By J. M. BALDY, M. D., C. H. BURNETT, M. D., ARCHIBALD CHURCH, M. D., C. F. CLARKE, M. D., J. CHALMERS DA COSTA, M. D., W. A. N. DORLAND, M. D., V. P. GIBNEY, M. D., HOMER W. GIBNEY, M. D., HENRY A. GRIFFIN, M. D., JOHN GUITERAS, M. D., C. A. HAMANN, M. D., H. F. HANSELL, M. D., W. A. HARDAWAY, M. D., T. M. HARDIE, B. A., M. D., C. F. HEISMAN, M. D., B. C. HIRST, M. D., E. FLETCHER INGALS, M. D., W. W. KEEN, M. D., H. LEFFMAN, M. D., V. H. NORRIE, M. D., H. J. PATRICK, M. D., WILLIAM PEPPER, M. D., D. RIESMAN, M. D., LOUIS STARR, M. D., ALFRED STENGEL, M. D., G. N. STEWART, M. D., THOMPSON S. WESTCOTT, M. D. Under the general editorial charge of GEORGE M. GOULD, M. D. Published by W. B. Saunders, Philadelphia.

An eminent medical editor has said that of all the current medical literature published, to-day about one hundredth part is worth reading. The difficulty has been to find this one hundredth part without wading through the other ninety-nine. The object of the present volume has been to cull the wheat from the enormous mass of chaff with which the journals are teeming.

As the editor of the present volume correctly says: "It is at present almost or entirely impossible for the specialist, even as regards his one department, to keep himself conversant with the tremendous literature in all languages and in a thousand periodicals. How much more impossible is it for the general physician (or for the specialist) who desires to keep in touch with the most important advances made in all departments!"

No claim is made that the volume is a literary review of all published matter, but it is a *summary of medical progress*.

The value of a book of this kind is directly dependent upon the ability of those who are to choose the things that are in the line of true progress, for "many new proposals are not new, many not true." Special training, experience, and ripe judgment is required to select what seems promising and worthy of trial, or of further consideration. In this instance the selection of the editorial staff seems to have been particularly happy.

Judging from the size of the present volume, which contains over

eleven hundred pages, the progress of the medical sciences during the past year has been great.

Every department is full of interesting reading. Nearly two hundred pages are devoted to general surgery. In this branch the greatest advances seem to have been made in abdominal operations.

In obstetrics the question of the education of students and physicians in the proper care of the pregnant and parturient woman has been thoroughly agitated during the past year. Good work has been done in the study of the pathology of the fœtal appendages and in the pathology of pregnancy. Obstetric operations and the study of the pathology of the puerperium have received much attention.

In gynæcology a number of procedures have been advocated to correct uterine displacements.

The treatment of fibroid tumors of the uterus continues to agitate the mind of the profession. Under the head of Diagnosis of Pelvic Inflammatory Disease is found the following significant remark by the editor: "The profession at large is awakening to the fact that a very large proportion of tubes and ovaries are annually uselessly sacrificed either to an absolute inability on the part of the operator to recognize the true condition, or to a culpable neglect on his part to accomplish an absolute diagnosis."

Extirpation of the uterus in disease of the adnexa is a question of supreme importance and has evoked much discussion.

The methods of performing hysterectomy have interested the operators of the whole civilized world. A lengthy discussion of the subject is given.

In pædiatrics the most important subject is the study of the infectious diseases and serum therapy. This is given the attention that its importance demands.

The section on pathology is especially commendable.

Among the last chapters, but by no means less important, is the study of new remedies.

It seems to us that a medical library with a book of this kind can not but be "up to date."

In type and binding this volume is the same as the American Text-books, which in itself is a recommendation. G. H. M.

PRINCIPLES OF SURGERY. By N. SENN, M. D., Ph. D., LL. D., Professor of Practice of Surgery and Clinical Surgery in Rush Medical College, Chicago; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon to the Presbyterian Hospital; Surgeon in

Chief to St. Joseph's Hospital ; Ex-President American Surgical Association, etc. Second Edition, thoroughly revised. Illustrated with 178 Wood Engravings and Five Colored Plates. Royal octavo, pp. xvi-656. Philadelphia: The F. A. Davis Co., Publishers.

The first edition of this book, which appeared about five years ago, was so well received and held in such high esteem by the profession that a mere mention of this volume, the second edition, revised and practically rewritten by the same distinguished author, surgeon, and pathologist, would be sufficient to commend it.

The subject of surgery is so vast that those parts relating to the consideration of the fundamental principles underlying the *science* has been largely sacrificed for the more practical information pertaining to the successful practice of the *art*. And so this book has been designed by its eminent author to fill in this gap in surgical literature, and by keeping in view the difference between the cellular processes as observed in regeneration and inflammation, "and to connect the modern science of bacteriology more intimately with the ætiology and pathology of surgical affections than has heretofore been done."

The importance of the thorough appreciation by the student of the principles upon which surgical pathology is based can not be overestimated, for having once mastered these principles, their practical application will be simple, while to one who only memorizes operative details to meet special indications is completely at sea in any variation from them. This edition is much larger than the first, new material has been added and new subjects introduced, and as recent investigations have elucidated new facts, these have also been introduced, thus bringing the work thoroughly up to date.

The chapters on inflammation, pathogenic bacteria, and suppuration are particularly valuable. Tumors have not been touched upon in this volume but are made the subject of a special work, *The Pathology and Surgical Treatment of Tumors*, and appears simultaneously with this one.

The binding and typographical work are excellent. E. P. M.

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TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL  
SOCIETY.

Stated Meeting, February 6, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.

Dr. FRANK W. TALLEY, at the request of the author, read a paper entitled

*History of an Interesting Case of Pregnancy and Confinement.*

By EUGENE P. BERNARDY, M. D.

(See page 446 )

Dr. J. M. BALDY, by request of the authors, read a paper entitled

*On the Treatment of Wounds, with Special Reference to the Use of  
Acetanilide.*

By FRANCIS L. HAYNES, M. D., and JOHN R. HAYNES, M. D.

(See page 495.)

DISCUSSION.

Dr. CHARLES P. NOBLE : I think this paper covers a large enough field to give us an opportunity for discussion. The first point which struck me was the statement that silver-wire sutures buried in a suppurating wound would permit the healing of the wound over the suture without its discharge. This is not a new observation. I have heard it before and there is no doubt it is well attested. For that reason silver wire in cases where we have to drain is undoubtedly a better suture material than silkworm gut. I have had a large experience myself with buried silkworm-gut sutures, and in aseptic wounds I think the silkworm material gives perfect results. Where we have septic wounds, where we have to drain, unquestionably silver wire is better suturing material. Only recently I had a conversation with Dr. Kelly, who has used a large amount of silver wire in abdominal work, and he stated that he did not know of a single case in which drainage was used, even though the wound suppurated, in which granulation failed to occur over the wire suture. Scarcely ever was it necessary to remove the wire. Dr. Kelly has employed silver wire

as a suture material for several years, and he stated that he had never been obliged to remove a wire. That is an interesting point and one well worth emphasizing.

The second point was the doctor's use of moist dressing for aseptic wounds. Of course we are all familiar with Keith's dressing, which was ten per cent. carbolyzed glycerin, and there is no doubt numberless cases of abdominal surgery were dressed in that way. It is probable that the majority healed without suppuration. My own method of dressing aseptic wounds has given me such excellent results that I can commend it highly. It is extremely simple. In abdominal wounds, aseptic wounds, there has been less than one per cent. of suppuration, so that the results are all that can be desired. I simply wash the abdomen clean after operation, then pour a pitcher of bichloride solution over it, and then take some wet bichloride gauze and lay it on the wound. On the following day the dressing is dry, after which we have an aseptic wound with a dry dressing which will absorb any discharges. After a few hours the bichloride gauze assists in absorbing any oozing from the wound.

The next point was the irrigation of the abdominal cavity. Along with most operators, my views on irrigating the abdominal cavity have undergone some change with further experience. Some years ago we were all of the opinion that when pus poured over the bowels, etc., all that was necessary was to wash out with water, put in a drainage-tube, and all would go well—this, of course, being the teaching of Tait and his followers. Various unhappy experiences led me to change this opinion. Now I am very careful to see that pus does not run over the bowels, and after the operation is over I am also very careful to dilute any pus by pouring in water in the region involved and sponging out, keeping the rest of the peritoneal cavity clean by having it packed with gauze. Then if I have reason to believe that other parts of the peritoneal cavity have been involved I irrigate as the final step. Whenever feasible, I think it is wise to clean the part which is locally infected and not to irrigate. In this way we avoid a possible chance of sepsis. In other words, I irrigate the pelvis and avoid irrigating the abdomen. Of course, if the abdominal cavity is soiled there is nothing to do but to irrigate. There is a good point taken by Dr. Haynes—namely, to see that there is a constant outward flow of irrigating fluid. I am quite sure there have been many patients in whom a septic peritonitis has been set up by irrigating—driving septic material into parts previously healthy, into folds of the peritonæum where it remains. With the funnel held at a considerable height, water runs

in faster than it runs out and into every part of the cavity, and we simply insure sepsis if that particular pus happens to be septic, which fortunately it usually is not.

With reference to catgut. I have recently been using the cumol catgut. I have used it only a short time, and so only recommend it from a theoretical standpoint, and also from the fact that the method of preparation does not injure it. Theoretically, certainly this is the best way of preparing catgut. The method is to dry the gut—securing good material, of course—in a dry-heat oven up to a temperature of  $80^{\circ}$  C. That simply drives off moisture. Then put in oil of cumol, which boils at  $170^{\circ}$  C. It should be boiled for an hour. I think it would be a pretty active germ that would live after this. The advantage in boiling in oil is that though absolutely sterilized you do not weaken the gut; if there is any change, the gut becomes tougher and stronger than before you have begun preparation. The further treatment of the catgut is to place in benzine to dissolve out the cumol, which is supposed to be irritating to tissues. The formula prescribed is to allow it to remain in benzine. There is here possibly a slip in the technique, because benzine is not a germicide; and although, according to rules, only an aseptic forceps should be used to draw out the catgut we need, germs might get into the jar. I think it is wiser to transfer the gut into a jar of alcohol and have only a small quantity in the jar which is to be got at from time to time. I have also thought of using biniodide of mercury, which would also lessen the chances of infection from the stock jar.

I have used acetanilide quite freely, and I confess I have not seen anything very wonderful in it. It acts very much in my experience as boric acid does. I can't say that it is a very remarkable powder. It has not given me any brilliant results. I do not feel that I am any better prepared to deal with surgical cases than I was before I used it.

Dr. SHOEMAKER: In regard to the use of acetanilide, I have made some experimental investigations, and have been somewhat disappointed. The reason for that is, that I only use a powder of any kind when I have reason to believe there is either tuberculosis or infection. I have found that acetanilide when used in gauze in packing the uterus has required changing very much oftener than iodoform packing—at least twice as often—and when removed it has considerably more odor, more of a semi-purulent discharge connected with the use of it, so that I have returned to the use of iodoform packing in a moist cavity, such as the uterus, in any septic condition.

I think acetanilide has a certain usefulness as a dry powder on a doubtful wound, but I believe, sir, that it is inferior to iodoform in inhibiting, as it were, the growth of bacteria. As far as plain aseptic wounds are concerned, I have not used acetanilide, and consequently my disappointment comes from the fact of its inferiority, where activity is needed. It seems to me that an aseptic wound needs no powder or application of this type.

My method of dressing an abdominal wound is not to use bichloride or anything else, but after stitching it to dry it and put on baked gauze without powders. That method has given me so much satisfaction that I don't propose to change it. I am in the habit of using the buried suture of silkworm gut where I am sure of my field and where I do not employ drainage. I have not had to remove any of the silkworm-gut sutures. There is a very great deal of importance to be put upon the holding of the dressing in place, however; otherwise we can not secure an aseptic wound in a laparotomy wound, and I believe many a wound is infected, and the dressing is charged with defect because the part of the gauze which has been over the pubic region has slipped to the lower angle of the wound. It takes a slipping of the dressing of less than two inches to bring an unclean or a doubtful portion of the dressing in contact with the lower angle of the wound, and in my experience the perineal band which is necessary to hold a many-tailed binder in place is often loosely or negligently applied by a nurse, especially where it requires frequent changing on account of irritability of the bladder or anything of that kind. Consequently I apply adhesive strips over the gauze and cotton dressing, and do not have this difficulty, using the rubber plaster to hold the dressing on. The strips end about five inches from the spine. They are not removed when the dressing is changed, but cut in front and refastened with safety pins. Four years' trial has proved the value of this plan.

The point in irrigation is very well taken to have the current of water toward the wound, if irrigation is used at all. It is a matter of pure mechanics, and it is an important one.

Dr. J. M. BALDY: I am a little more than surprised at the implied idea that abdominal wounds are so frequently infected. I have seen but one abdominal wound that was infected—that is to say, that had pus in it—in my life. I am not, of course, speaking of the drainage-tube tract; I mean an abdominal wound infected by dragging up of the dressing. If you place a wet dressing on a wound, as there is an oozing from the cut surfaces during the first twenty-four hours,

the condition of humidity is kept up, and absorption can not take place. As suggested by the first speaker, a wet dressing is applied, and in the course of twenty-four hours it is dry and competent to perform the work for which it should be applied—that is, absorption. Now, if a dry dressing is placed on in the first place, impregnated with acetanilide or any other material of that character, any chance of infection is obviated, and we have within a short time a perfectly dry wound, and at the end of twelve to twenty-four hours, unless we deliberately rub in dirt with our fingers, it is impossible to infect it. Therefore I am surprised to hear that so many of these infected wounds exist as one must conclude from the remarks this evening. So far as dry powder is concerned, I think it is an abomination; it is absolutely unnecessary. When dry powder is put over a wound which is oozing more or less of necessity, it simply forms a wet cake. Those who have made mud-pies on the banks of a river in their younger days can recall an analogous condition. The sutures are buried in this paste, and it only complicates taking them out. I do not mean to imply for an instant that I have never seen a suppurating suture tract. If so, however, they have been infected at the time of operation, or are due to infection at the time of removal of sutures. The suture tract is exceedingly small in comparison with the wound made by incision, and where you have a suture abscess you do not have an abdominal-incision abscess. If the infection has come from dragging of the dressing over the pubis and the lower angle of the wound, we would be more likely to have an abscess of the suture tract. I can not see how acetanilide or any other dressing can affect wounds which are infected in their depths. I can conceive that if acetanilide is used, it may protect the skin surface, but when you go below the skin surface into the connective tissue and deep fascia, you are beyond its reach.

I can not see how acetanilide is going to do any good. Certainly the portion of the suture that is buried in the subperitoneal fascia extending into the peritoneal cavity is not affected by it one way or another. I think that the fact that we do not get any infection whatever without the use of these powders, and because when we do use them we do not get any infection, it is not fair reasoning to say it is due to the powder. There are other causes, probably, why infection does not occur. The probable truth is that the good result is due to extreme care in preparing our nurses, our hands, our sutures, and everything about the operation, and yet oftentimes the credit is given to a perfectly superfluous agent like iodoform or acetanilide.



In general suppurative peritonitis I should treat the case as an open wound, and should make no effort whatever to close it. The only way, if we would get good results in suppurating peritonitis, is to allow the freest drainage we can get. You are simply forcing infection through the abdominal cavity; you are infecting areas that may not be infected by suppuration if you irrigate through a small opening. If acetanilide be poisonous, as is stated in the paper, I should never think of using it in the general peritoneal cavity.

I would very much dislike to place any suture in any suppurating wound with the idea of keeping it there. In these cases I should only care to use catgut. There may have been a few strands of silver wire placed in a suppurating wound which have buried themselves in granulations, but I do not think this offers any particular recommendation.

Official Transactions.

FRANK W. TALLEY, *Secretary*.

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## TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

Stated Meeting, February 21, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

### *Fibroid Tumors of the Ovary.*

Dr. HENRY P. NEWMAN: I have here two fibroid ovarian tumors recently removed from two patients. These growths are not of very frequent occurrence, as only about five per cent. of ovarian tumors are solid. One of these fibroids is interesting, because it resembled in size and shape a floating kidney. It was carried high up in the right iliac region by the pregnant uterus, which fact, together with its size and shape, caused a diagnosis of floating kidney to be made. When the woman had advanced in pregnancy to about the eighth month an operation was talked of, but was not performed. Some months after the birth of the child I removed this growth, which involved the right ovary. The fibroid extended underneath the round ligament, which constricted it across its center and gave it this peculiar kidney-shape.

I would call attention to the fact that a solid tumor of the ovary

associated with advanced pregnancy may be mistaken for a floating kidney, as it was in this case by an eminent practitioner in this city. If an operation had been done as was proposed, prior to delivery, it is doubtful whether as good results would have been obtained.

The second solid tumor which I exhibit is also a fibroid of the right ovary of about the same size as the first one. Before this tumor had been discovered the patient had been curetted two or three times for menorrhagia without relief. The influence of ovarian disease should be always borne in mind in obscure cases of uterine hæmorrhage.

*Multilocular Cyst.*

The next specimen I exhibit is a multilocular ovarian cyst. The principal point of interest is the rapidity of its growth. The patient was sent to me by a skillful physician who had examined the woman last October without detecting any tumor. No history of local trouble of any kind could be obtained, and it was only in the last few weeks that the patient began to suffer from pressure symptoms and exhaustion. The contents of the cyst were drawn before the tumor was removed, but its estimated weight was about forty pounds. The tumor extended up, so that it encroached on the stomach and diaphragm. The patient is fifty-one years old, unmarried, and nulliparous, and in consequence has suffered in a remarkable degree from distention of the tense abdominal walls and upward pressure upon the diaphragm and thoracic viscera. On this account she has been confined to her bed constantly of late. She has every prospect of a good recovery.

DISCUSSION.

Dr. E. C. DUDLEY : I once made an autopsy in the case of a man whose kidneys were normal in every respect except that one was adherent to the brim of the pelvis. If this had occurred in a woman the differential diagnosis between this condition and some growth connected with the uterus or ovaries might have been difficult.

*A Case of Alexander's Operation without Buried Sutures.*

BY FRANKLIN H. MARTIN, M. D.

(See page 468.)

DISCUSSION.

Dr. HENRY P. NEWMAN : The method outlined by Dr. Martin is very similar to one already in use by several operators in this country,

and identical, I believe, with one which has been employed for eight years or more by Batchelor, of Dunedin, New Zealand.

Dr. Cleveland, of New York, makes an incision not more than an inch long on either side, and through this (after the ligament is found and drawn out) he passes a delicately curved ligature-carrier out upon the mons Veneris and grasps a loop of silkworm gut or other material which he carries back to the free end of the ligament. The ligament is placed in the loop of silk and drawn out upon the mons, where it is tied to the other ligament, which has been similarly treated, and the excess cut away.

Dr. Batchelor's method \* consists in passing a sharp-pointed forceps through the skin and subcutaneous tissues of the mons Veneris, seizing the ligament of one side and drawing it back to the other, when the two are tied together.

This plan, while open to some objections, seems to be an improvement on the older methods, but the operation of shortening the round ligaments has been improved in many ways since the old Alquié-Alexander-Adams procedure.

I hail with pleasure any modifications or improvements in technique which will help to popularize this satisfactory mode of treating a certain class of well-selected cases of uterine displacements. It has advantages over hysterorrhaphy, vaginal section, or any operative procedure which contemplates opening the peritoneal cavity. Indeed, I do not consider the latter warrantable in uncomplicated cases of uterine displacements.

The operation can be done expeditiously and safely, and the results will bear out what has been claimed for it by those who have operated any considerable number of times.

Dr. NICHOLAS SENN: Are you not fearful that the knot you make of the round ligaments will in the course of time become absorbed?

Dr. MARTIN: With reference to tying the knot, the method is not original with me; the security and reliability of the knot have been demonstrated by Duret. I do not believe a knot which is so thoroughly buried in well-nourished tissue will become absorbed. I believe the attachments will be firm throughout the length of the ligament, and that the nourishment will be kept up. I take it for granted that the cases given by Duret were honestly reported.

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\* *New Zealand Medical Journal*, vol. vii, No. 4.

Resumption and conclusion of the

DISCUSSION ON  
THE INDICATIONS AND MODES OF DRAINAGE AFTER  
ABDOMINAL AND VAGINAL SECTION.

Dr. FRANKLIN H. MARTIN : Although I discussed this subject at the last meeting of the Society, I desire to say a few words in regard to drainage of the stump or cervix left after abdominal hysterectomy for fibroids or other pathological conditions. I have operated in the last month on two cases of fibroid in which I adopted the following method of drainage of the stump, having got the idea from the discussion at the last meeting of the Society. This idea was partially the result of the discussion on Dr. Senn's specimen and his peculiar method (the cuff method) of treating the pedicle, and of the remarks made by Dr. Ferguson in regard to drainage of the abdominal cavity. In these two cases I utilized the peritonæum as Dr. Senn recommends, but in a different way. The peritonæum was stripped down from the tumor anteriorly and posteriorly for about an inch above the point at which I expected to sever the cervix ; then the peritonæum was stripped from the cervix, in front and behind, down to the vaginal deflection, leaving the cervix completely exposed and free from all peritoneal covering. The cervix was cut off in the ordinary manner and closed, the uterine arteries having been previously ligated. The cervix was closed with catgut after cauterizing the canal. A slight amount of oozing about the pedicle is liable to occur. I simply made an opening between the cervix and bladder into the vagina, through which I carried a small rubber drainage-tube and gauze, then laid over the cervix a small amount of gauze packing and sewed the peritonæum over it so that all the drainage from the cervix would be subperitoneal, coming through the tube and gauze in the vagina, thus securing gravity and capillary drainage. In each case there was oozing enough to warrant the drainage, and at the end of forty-eight hours the drainage-tube was removed. Both cases are nearly ready to leave the hospital without any interruption or unfavorable symptoms in the course of their convalescence. If drainage should be so perfect in this little subperitoneal cavity, it makes me believe more thoroughly in the drainage described by Ferguson and others for the general peritoneal cavity—that is, gauze and tube, or gauze alone.

I wish, however, to defend the glass drainage-tube and aspiration to this extent : I have casually looked over my cases, and find about three hundred in which I drained with a small glass drainage-tube.

Of this number I have not observed one ventral hernia. I can say positively, as far as I know, that I have never had a hernia in a case where I used drainage; hernias have, however, occurred in two cases in which drainage was not used. I have never had a death as the direct result of the use of the drainage-tube, and I feel—although I wish to be corrected if I am wrong—that the small glass drainage-tube for draining the general abdominal cavity of fluids is ideal drainage, providing there is a proper attendant to care for it.

Dr. G. WILLIAM REYNOLDS: Several members of the Society have advocated suction drainage by means of a syringe; that is, removal of the dressings and, by suction, withdrawal of the fluid from the drainage-tube that accumulates a few hours after the operation. I wish to condemn that mode of drainage because of the danger attending it. My first experience in drainage of the peritoneal cavity after operation was by the suction method, and I certainly have no desire to again practice it. We know that to open the wound of the peritoneal cavity by removing the dressings is dangerous, and the more frequently we do this the more danger there is of septic infection. Some operators even allow nurses to practice this method of drainage. We all fear removal of the dressings, even in aseptic wounds, for several days or a week, and if the symptoms are favorable we never remove the dressings during this time even to look at the wound. Why should we repeatedly remove dressings in order to withdraw fluid which can certainly be evacuated by more modern methods than suction drainage? Capillary drainage will accomplish this, or we may resort to the combined method of capillary with tubular drainage. Every member of this Society knows that by the use of capillary and tubular drainage he has no fear that the peritoneal cavity will not be thoroughly drained of fluid. With this drainage the dressings will be saturated within twelve or twenty-four hours.

Dr. HENRY P. NEWMAN: I can not agree with the last speaker in regard to drainage, particularly tubal drainage and the so-called suction method of removing fluids. If the latter method is practiced according to the rules laid down by those who use it to any great extent, there should be no disturbance of the dressings. The wound should be thoroughly covered with the usual antiseptic dressings. The rubber dam should be put around the projecting end of the glass tube and covered with cotton, subsequently covering it well with the gauze and rubber dam. Over this is placed a second pad, and with the tube thus covered we have ample protection from infection from without. The doctor says that with this method of drainage



nurses are liable to infect patients. It has been my experience that they have never done so. Of course, great caution is necessary, and nurses are supposed to be instructed as to the importance of this particular line of work. I have had no unpleasant results from the use of suction drainage; indeed, quite the contrary. I believe in some cases my results would not have been as satisfactory if this method of drainage had not been used. We frequently hear it said that the use of drainage is an apology for imperfect surgery. On the other hand, sometimes it is an indication of good judgment and the very best surgery. When we have abraded surfaces after removal of large tumors, or large, raw, peritoneal surfaces, and take the time necessary to arrest the oozing by ligating small blood-vessels, exposing the abdominal viscera and protracting the anæsthetic, we are doing work that is unnecessary and is hazardous to the patient's life. It is better to close the wound and use a drain in the *cul-de-sac* through the abdominal wall or through the vagina. If it is used through the abdominal wall and protected in the manner I have described, a large amount of bloody fluid or serum can be pumped out as often as indicated. The patient will recover more rapidly than if the abdomen is closed without drainage after a protracted operation during which more or less accumulations occur. The tax put upon the patient to take care of fluids that are foreign to the peritoneal cavity is, to my mind, infinitely greater than the slight risk of entering the peritoneal cavity to remove such deleterious matters by means of suction whereby the peritoneal cavity can be kept comparatively dry.

I do not believe we can lay down any prescribed rules in regard to drainage in general. We can not always say when we shall and when we shall not drain. Of course, there are certain positive indications for drainage, but the drainage must be adapted to the individual case. Protracting operations by taking the time necessary to check the oozing of blood from minute vessels and tying them is very dangerous. We should act quickly in such cases, close the abdomen with proper toilet, and treat the cases in the manner described. My last three cases call this to mind very vividly; one was a multilocular ovarian cyst with extensive adhesions, one had a large accumulation of pus in the right tube, and the other was a hysterorrhaphy in connection with perineorrhaphy and trachelorrhaphy. The first two operations were very difficult. They took more time than usual and necessitated tearing part of the structures. In both instances I used drainage. In the last (hysterorrhaphy) the operation was simple and easily accomplished without any complications and the abdomen quick-

ly closed, everything being ideal as far as could be seen. This case, however, gave me the greatest anxiety from the fact that the patient was anæmic and neurotic. She was frightened at the thought of operation. Before, during, and after the operation she had a rapid and feeble heart's action, due to fright, as there was no temperature. There was very little shock, and she made a speedy recovery.

Dr. J. T. BINKLEY, JR.: I can not agree with the remarks made by Dr. Reynolds in regard to drainage. Although my experience has not been as extensive as some of the members of this Society, I have had a number of cases in which I drained with the tube and syringe in the manner described by Dr. Martin. Although I have lost some cases that I have drained, I feel perfectly safe when I drain. Most abdominal surgeons employ combined capillary and tubal drainage. I fail to understand how a practitioner can infect a patient by the drainage-tube if the toilet is properly made. Every surgeon who does considerable abdominal work ought to be able to introduce a tube and establish drainage without infecting his patient. The tube should never be used with the suction syringe excepting in combination with capillary drainage. The gauze will bring the fluid to the surface for a while, but when it becomes thoroughly saturated it will not drain all the fluid in the bottom of the cavity. I therefore think that one of the most perfect methods of drainage is by the tube and suction syringe. I believe, however, that drainage may be accomplished through the vagina. I have not had as good results in all of my cases as Dr. Martin reports, and I must confess that I have had some ventral hernias follow drainage.

Dr. E. C. DUDLEY: In my earlier abdominal work I used the small glass tubular drain of Keith, but it was not always adequate. When the Mikulicz drain came into use I adopted it in numerous cases, and occasionally combined it with the tubular drain. If any one doubts that the subject of drainage is still very much unsettled, let him follow the discussions of this Society. What I may be doing a year from now I can not say. At the present time I seldom use the small glass drain, and seldom drain through the abdominal wall. If I have to drain at all, I prefer the vaginal route, and if the vagina has not been opened during the operation and the case needs drainage, I am very apt to make an incision from the *cul-de-sac* of Douglas to the vagina, and use the gauze drain for that purpose.

There are two principal indications for the use of gauze packing: 1. For hæmorrhage which can not be practically controlled in any other way without unduly prolonging the operation. The gauze pack-

ing then used is immediately a compress, but if left longer than is necessary for this purpose, becomes a capillary drain. 2. Pelvic gauze packing is indicated when it is desirable to quarantine the field of operation from the rest of the abdominal cavity. The rapidity with which adhesions form around the packing is well known. The septic area is shut off by these adhesions from the general peritonæum, and in that way the septic influence is confined within narrow limits. These I conceive to be two most important indications for the use of gauze packing. This use of the gauze, however, should not be confounded with its use as a drain. The indication for drainage as usually urged—that is, to get any fluid which may form out of the peritoneal cavity—is possibly of less importance than has been supposed. The peritonæum has often demonstrated its ability to take care of large quantities of secretions. If, as many claim, it be true that the presence of a drain excites the secretion of large quantities of fluid which would not otherwise be secreted at all, it would follow that the drain is not so often necessary as the large quantities of fluid which it carries off would indicate. This would be especially true if the peritonæum has great capacity to take up this fluid by absorption. Clearly it would be absurd to use a drain for the purpose of carrying off secretions which it had itself produced. The cases, however, are doubtless frequent in which more fluid will be secreted without a drain than the peritonæum can take care of. Under these conditions capillary or tubular drainage, or combined drainage, is indicated.

Substitution of the vaginal for the abdominal drain offers two great advantages: 1. The drainage is dependent and natural. 2. The danger of hernia is reduced to the minimum. If I had been asked two years ago whether I had much trouble from ventral hernia I should have said "No." Even when the gauze drain had been used I had seldom noticed any failure of adequate union in the wound. Further observation during the past two years, however, would require me to say "Yes." A very embarrassing number of women have lately come back to me with ventral hernias. The hernias for the most part are small and do little harm; but the fact remains, and the cases are not only an annoyance, but, I must add, a reproach to the operator. These ventral protrusions have occurred in the drainage cases, sometimes even when only the small glass tubular drain was used. I am very glad to be able to drain by the vaginal route, which permits complete closure of the abdominal wound. My observation has been that drainage by the vagina is usually accompanied by the most satisfactory convalescence. If there is any difference on this score between

vaginal and abdominal drainage, the choice is rather for the former. Twenty years ago experience established the rule that the vaginal route was more dangerous. Clean surgery has reversed that rule.

Reference has been made to the dictum of Lawson Tait: "When in doubt, drain." That appeared to be a wise proposition at the time it was made. If it be true, however, that the presence of the drain causes the secretion of fluid which would otherwise not be secreted, and if it be true that the peritonæum is capable of taking care of much more of this fluid than is usually supposed, the question may arise whether this dictum may not have to be reversed—"When in doubt, don't drain."

Dr. NICHOLAS SENN: It is very evident, from the remarks that have been made this evening, that there is no unanimity of opinion either in reference to the indications, the technique, or the proper route for drainage. I expected that this would be so, because in looking over the literature we find the same diversity of opinion prevailing almost everywhere. I was very much astonished to find, however, so many of our most prominent gynecologists of vast experience pleading in favor of the vaginal instead of the abdominal route. It is perhaps well here that I should remind the members of the Society of the experience of one of the earlier ovariologists—the famous Prof. Nussbaum, of Munich, who about twenty years ago wrote one of his classical articles on ovariectomy with especial reference to drainage as a means of preventing death from sepsis. In that monograph he compared vaginal with abdominal drainage, having first resorted to the abdominal route with not very satisfactory results, and afterward draining behind the uterus into the vagina. He made the positive statement that the vaginal route furnished no better escape for the fluid of the abdominal cavity than the abdominal route. It is unnecessary for me to say that Nussbaum invariably, at that time, resorted to the tubular drain. When it comes to the use of gauze as a means of drainage, I can absolutely see no preference for the vaginal route; in fact, I think drainage in this direction is attended by additional dangers. It is difficult to disinfect the skin; it is much more difficult to disinfect the vaginal mucous membrane, and if at the same time we consider the additional dangers of contamination from the proximity of the vaginal outlet to the anus and urethral meatus—all fruitful sources of infection—we can readily see that there are many ways in which infection can be carried from a dressing in the vagina through the opening into the peritoneal cavity. It is astonishing that accidents have not occurred more frequently. I think it is a mistake to

believe that capillary drainage will be more efficient in this direction than in the abdominal route, because the capillary drain will act with the same efficiency in either direction. I should therefore, in all cases of aseptic intra-abdominal operations requiring capillary drainage, prefer the abdominal route.

Dr. Van Hook read a very interesting paper at the last meeting on gauze drainage, believing that it was a method of drainage that should invariably be selected. I stated at that time that there is a limit to gauze drainage, that it can only be relied upon in removing sero-sanguinolent fluid, that it is a very poor medium indeed to dispose of either pus or blood, and that in cases requiring drainage for pus the tube is the drain to be selected. Under such circumstances, of course, I should have no hesitation, in appropriate cases, in draining by the vaginal route, the most dependent point. For ordinary cases after operations, in which there are large exposed surfaces, where we do not drain for the purpose of arresting hæmorrhage, we have no need for the Mikulicz drain; but where a large accumulation of primary wound product occurs, I believe the ideal drain is the combined drain—a large glass tube packed loosely with iodoform gauze. I have found this method of drainage reliable in promptly disposing of the wound products. I can see no advantage in substituting a small glass drain for a large one, because under such circumstances drainage is usually employed for only forty-eight hours at the utmost, and we now invariably insert a secondary suture at the time of the operation, which is tied after the drain has been removed. Drainage under such circumstances does not predispose to the formation of ventral hernia. It is the prolonged drainage for purulent affections that is almost invariably followed by ventral hernia.

I am very much astonished to find that the experience of one of our prominent members has been so favorable in reference to abdominal hernia—two cases of hernia out of three hundred laparotomies. These statistics are very creditable, but I fear that if Dr. Martin could place his three hundred patients in a row and inspect them he would probably find a little increase in the number of hernias. I find that cases of ventral hernia which occur months or years after the operation do not always come back to the operators themselves. As our President remarked, a ventral hernia is a reproach to the operator, and the patients regard it as such, and, either through modesty, delicacy, or ingratitude, fail to report at the proper office. I always fear to continue drainage longer than forty-eight hours, because under such circumstances we can hardly expect an ideal primary



union of the abdominal incision. But I feel sure that drainage prolonged for forty-eight hours, with subsequent secondary suturing of the wound, will not interfere with a prompt and firm union between the apposed wound margins.

There has been nothing said thus far—and I do not know that it comes within the legitimate range of our discussion—in reference to secondary drainage after abdominal operations. I will ask the President if remarks on this phase of the subject are in order.

The PRESIDENT : Yes. I think they come within the range of the discussion.

Dr. SENN (resuming) : I desire to place myself on record in opposition to the assertions made by some of our surgeons who have had such wonderful results in cases of diffuse septic peritonitis by establishing free and efficient drainage. It has been my misfortune in a number of cases of septic peritonitis following laparotomy to be obliged to reopen the wound, to resort to drainage, and even to limited antiseptic lavage, but I have never yet seen a recovery. I regard a case of diffuse septic peritonitis following abdominal section for different indications as an absolutely fatal affection. If I have reason to believe, after an abdominal operation, that a patient has diffuse septic peritonitis, I drain as a matter of conscience, with little or no expectation of ultimate recovery of the patient. I believe the alleged cures following abdominal incision and drainage in diffuse septic peritonitis are instances of anatomical delusions ; that they have not been cases of diffuse septic peritonitis, but of circumscribed peritonitis with displacement of the abdominal organs simulating diffuse peritonitis. It is different in cases of localized suppurative peritonitis, and I am sure that every gentleman present has had such cases under his observation where, in spite of antiseptic precautions, symptoms appear a few days, a week, or sometimes two weeks after an operation that point to a limited suppurative peritonitis. It is in such cases that reopening of the wound is called for and tubular drainage instituted for prompt relief, with retarded recovery of the patient.

I can hardly understand why one of our members has placed himself on record to the effect that he has no use for the Mikulicz drain. If it were not for this drain there are many operations that I undertake now with a fair prospect of recovery of the patient which I would hesitate to undertake without this reliable hæmostatic resource. I am sure the cases are not isolated in which we find in extensive enucleation either of a pus-tube, an ovarian cyst, or a myofibroma that a large surface becomes the seat of a profuse parenchymatous

oozing during and after the operation. It is in such cases, particularly if deep down in the pelvis, that the surgeon finds it impossible to completely arrest hæmorrhage by compression forceps and ligation. In these cases the Mikulicz drain answers an excellent purpose, and I have never yet seen any harm following the use of this drain if properly used, and I am very partial to it, believing that it is the duty of the surgeon to resort to this method of direct compression to prevent an undue and perhaps dangerous loss of blood.

Dr. T. J. WATKINS: Very active drainage can be secured by leaving the strip of gauze external to the wound long so that the end may be placed at a lower level than the gauze in the abdomen. Dr. Van Hook mentioned this point, but he did not consider the increased action of the gauze as due to siphonage. I am certain that gauze used in this manner has a siphonic action. This method of drainage was mentioned to me by Dr. L. L. McArthur about nine months ago, and since then I have occasionally used it for abdominal and vaginal drainage. When used through the abdominal incision the gauze extends over the side of the patient, and the action of the gauze when so used has been very much better than when it was cut short. I have used this method four or five times, with very satisfactory results, through a vaginal incision, allowing the gauze to extend over the perinæum.

In the remarks made by Dr. Martin with reference to draining the stump after abdominal hysterectomy I fail to see the indications for drainage. If he sutured the broad ligaments thoroughly and united the two flaps of the cervix accurately, the fluid which escaped through the drain may have come from the denuded cervix or from the large peritoneal flaps.

The question of producing infection by emptying the abdominal glass drainage-tube by suction is an important one, and I am surprised that in the discussion the bacteriological experiments which have been made in reference to this subject have not been mentioned. Dr. Hunter Robb has proved beyond the shadow of a doubt that it is impossible to frequently siphon out these tubes without producing infection. I believe the indications for tubular drainage are so few that in a short time it will only be used in exceptional cases.

I am very much surprised that Dr. Senn should use as an argument against vaginal gauze drainage observations that were made long before antiseptic surgery was practiced and before the use of gauze drainage was known. No one should drain through the vagina without thorough preparation of the vagina. The results which fol-

lowed drainage through the uncleansed vagina are only of historical interest. If one expects to use vaginal drainage, the vagina should be thoroughly scrubbed and disinfected after the patient is anæsthetized, and if the uterine cavity is septic it should be thoroughly curetted, irrigated, and packed with gauze, and the vagina recleansed. The results which have followed operations in and through the vagina are positive proof that the vagina can be so prepared that there is very little danger of infection.

I am very glad the question of secondary drainage was brought up. Within the last year I have irrigated and drained through a vaginal incision in two cases of septic peritonitis following abdominal section, with recovery in both instances. In every case of peritonitis following abdominal section I believe that thorough irrigation and drainage should be employed through a vaginal incision. When vaginal drainage becomes generally adopted in the severe cases of abdominal section, septic peritonitis will be of much less frequent occurrence than it is at present.

*Mortality from Puerperal Infection in Chicago.*

BY CHARLES S. BACON, M. D.

(See page 429.)

DISCUSSION.

Dr. E. J. DOERING: I congratulate the author on the immense amount of work and time he has given to the subject of puerperal infection in this city. It is certainly one of great importance. It is a matter of regret, however, that we have no system by which we can compel physicians to report births and deaths. Until this is done, our statistics can not be of any absolute value.

Dr. FRANK A. STAHL: The paper read by Dr. Bacon suggests the very important question, Is drainage indicated after normal labor? The question has been asked again and again whether the increased death-rate from puerperal infection during the last two years has been due to the omission of vaginal douches. It is well known that obstetrical teaching during the last year or two has been to omit the use of the douche. There is no doubt in my mind that the mortality from puerperal infection is largely due to uncleanness after labor.

While Dr. Bacon has spent an immense amount of time and labor upon the preparation of this paper, he has arrived at no conclusions.

Dr. BACON (closing) : I do not think the figures I have given will justify any conclusions in regard to the influence of obstetric teaching. In the first place, the mortality from puerperal infection in the last two years is not much more than for the preceding four years. Secondly, I believe the practice among midwives is a very important element in the consideration of this subject, and the teaching of medical schools in regard to douching has probably not invaded the practice of midwives. The only conclusion I have drawn is that there has been an improvement in obstetric practice in this city during the last thirty or forty years, as shown by the fact that the ratio of mortality due to puerperal infection is less, but that there is still a very large mortality—about twice what it is in London, or about five or six times as great as it should be.

Official Transactions.

T. J. WATKINS,

*Editor of the Society.*

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## TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, January 21, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.

*Double (one Large) Ovarian Tumor removed by the Vagina ; Cancer of Cervix Uteri removed by Abdominal Hysterectomy ; Resection of Right Ureter.*

Dr. W. M. POLK, in presenting the specimens, said : The first illustrates the size of an ovarian tumor which can be removed by the vagina. The second one is intended to represent suprapubic extirpation of the uterus by the method to which I called the attention of the Society two years ago, reporting a case.

The first specimen is from a woman sixty-five years of age who had had a pelvic and abdominal tumor which I concluded was not adherent—at any rate not adherent in the upper part of the peritoneal cavity, into which it extended nearly up to the ribs, filling the abdominal as well as the pelvic cavity. This fact had considerable influence in determining the operation adopted. The tumor, which was a large cyst of the left ovary and a smaller one of the right ovary, was prominent in the posterior vaginal fossa, and after making the ordi-

nary incision the trocar was introduced and the fluid contents evacuated. The fluid was not very thick, another fact which made the case favorable for vaginal operation. I do not pretend to say that all growths of the size which you see illustrated by this larger sac—larger than a seven months' pregnant uterus—should be removed by vaginal in preference to abdominal section, for unquestionably the tumor could have been removed very easily by suprapubic section. It shows, however, that even for such tumors the vaginal method is entirely feasible and safe, even though you leave the uterus in position, as was done here.

While this specimen represents a reversal of the ordinary method of removing ovarian tumors, the other one which I am about to present represents a reversal of the method which we have usually applied in removal of carcinoma of the uterus, proving the interchangeable nature, so to speak, of this kind of work as we have become familiar with it. And I think the two specimens serve to illustrate, as well, perhaps, as any two specimens can, the lack of wisdom evinced by those who claim that only one line of approach should be permitted to growths which spring from the pelvis. A broad, catholic surgery unquestionably permits of whatever approach seems best for the particular case, and those gentlemen who choose to make themselves familiar with infrapubic or vaginal section, as well as with suprapubic section, will, by so doing, render themselves all the more efficient in their work. That applies not only to smaller growths, which unquestionably can be easily removed from below, but likewise to growths of large dimensions. You know, of course, when Freund introduced his operation for cancer the frightful mortality attending it caused it to be abandoned; but that was at a time when the mortality was also great for all abdominal sections.

The mortality from ovariectomy was then about twenty-five per cent. Now we recognize a lower mortality for the different operations, showing that the matter of imperfect technique entered into the operation of Freund, as well as into others which touched the peritoneal cavity. It seems we have now reached a point at which the perfection of our technique justifies us in reverting to the operation of Freund, and for the following reason: There can be no question that an operation for carcinoma of the cervix done from below is somewhat blind, and I say this with the distinct knowledge that a like charge has been laid at the door of vaginal section for suppurative disease of the pelvis. But there is an immense difference between the two conditions. In the first place, in suppurative disease we



can usually succeed in emptying and enucleating the several sacs without endangering important structures other than intestines. The ureters and larger vessels are entirely outside of the field of operation. And even if we should not succeed in removing all of the suppurative tissue, we know full well that no worse result would happen than a sinus, and one which, in the majority of instances, would close of itself. It is very different in carcinoma, especially in carcinoma of the cervix, where the line of extension is directly beneath the peritonæum, going around the ureters, along the course of important vessels, so that any attempt at enucleation would be at such risk to the ureter, and such risk of hæmorrhage that the boldest operator would shrink from undertaking it. As a matter of fact, we know well that these operations are all incomplete. I mean operations on cases in which the infiltration has extended beyond the cervix. We do them because we have persuaded ourselves, and correctly, perhaps, that the uterus under such conditions is better out of the patient than in. But as to enucleating the disease itself, it is impossible when operating from below. That may be true when operating from above, but the chances here are better.

To come to the case in question. It was one in which the disease had primarily sprung from the cervix. On the right side, which was most affected, it had worked its way out to the periphery, and nothing more than a mere shell of outer cervical and cellular tissue remained. In the operation which I adopted I opened into the cellular tissue which lies between the cervix and under surface of the peritonæum in that region. After thoroughly cleansing the vagina, curetting the uterus, and cutting away suspicious tissue with the scissors, the structures left behind were septic to a minimum degree. Bichloride was applied with a sponge, the vagina was packed, forcing the uterus up as far as possible, and then abdominal section was made. Here comes the point of departure from the usual procedure. The uterine vessels were ligated at the wall of the pelvis outside the vesical branches. The finger was introduced between the layers of the broad ligament and caught up the uterine artery just where it is given off from the anterior branch of the internal iliac. This is as easy as to find the artery alongside the uterus. In carcinomatous infiltration it can be lifted right up and ligated at the pelvic border. You then have a bloodless field in which to work. Then you separate the bladder, and push down alongside the vagina as far as you wish to go. As a matter of fact, you can enucleate the whole upper portion of the vagina and not lose any blood of consequence. Of course in

doing this you have admirable opportunity to take out any cancerous gland which may have formed between the uterus and pelvic walls. But if you find glands out this far you may be sure some are affected up in the lumbar region, showing that it is useless to go farther. But in many of these cases you will find that the infection, according to the gross appearances, is limited to the region in the immediate neighborhood of the uterus, and can be shelled out as was done in this case. I found the left ureter perfect. The right one contained a cancerous nodule, and I removed about an inch of it, tying off the end next the bladder and implanting the end on the kidney side into the base of the bladder about three quarters of an inch above the normal position of the ureter. This was last Monday, a little more than a week ago. The patient is in very good condition, and there is no reason why she should not get well. The temperature is practically normal; the pulse is in good condition. An abundance of urine has passed. There has been a little leakage from the point of insertion of the resected ureter into the bladder, as shown by a little urine along the drain which was left in.

The essential point of the procedure is the ligation of the uterine arteries next to the pelvic wall. This does away entirely with the bleeding which comes from the lateral and posterior vaginal branches and the vesical branches, and therefore leaves you a clean field for manipulation. I have applied the same principle in hysterectomy for fibroid tumors and in the total ablation of the pregnant uterus in deformed pelves.

Dr. GEORGE M. EDEBOHLS: The method of total extirpation of the uterus for carcinoma from above, just described by Dr. Polk, has, as he has justly claimed, this essential feature in its favor: prior ligation of the ovarian arteries and of the uterine arteries close to their origin from the posterior trunks of the internal iliacs. This procedure will render the field of operation practically bloodless, an important aid in the endeavor to remove thoroughly all cancerous tissue. Of course complete eradication of all cancerous tissue when the infection has extended to the sacral glands is practically impossible from above. Sacral hysterectomy alone can, under these circumstances, adequately meet the indications. The removal of the entire broad ligament in cases of malignant disease affecting the female pelvic organs, which has within the past year been again more prominently brought forward by Dr. John G. Clark, of Baltimore, is not a novel procedure. Nearly three years ago (March, 1893) I presented to this Society a patient from whom I had removed by perine-

otomy a small sarcoma situated just behind and to the left of the cervix. Immediately following its removal, in order to give the patient a fair fighting chance against so malignant a disease, I opened the abdomen above the pubis and removed, not alone the uterus, tubes, and ovaries, but the entire left broad ligament clean out to the pelvic wall, leaving only the ureter. The operation was performed December 16, 1892, and I have a distinct impression that I did not consider the procedure novel at the time. It becomes, however, a very serious question, when we are called upon to remove a *carcinoma of the uterus* which requires such extensive resection of the broad ligaments, whether it is worth while to operate at all with a view to radical cure. There is at least one point which must be insisted upon—namely, that there is absolutely no sense in removing the uterus and broad ligaments, with every vestige of disease contained in these organs, and at the same time leaving enlarged sacral glands behind the rectum. An operation ought never to be begun for the radical cure of carcinoma of the uterus until these glands have been examined. They are readily reached from the vagina and rectum.

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Stated Meeting, February 4, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.

*Decidual and Pseudo-decidual Membrane ; Differential Diagnosis between Uterine and Extra-uterine Pregnancy.*

The President presented a decidual membrane (two months' pregnancy), and said that he had intended to show a specimen which was almost identical macroscopically, removed by curettage previous to an operation for ruptured ectopic gestation. The patient in the latter case was seen by him a few hours after her physician had been called and had administered nearly a grain of morphine for supposed colic. The diagnosis of ectopic pregnancy, however, was clear. The patient gave a history of having missed a period, of having had an irregular discharge, of colicky pains, and faintness, and a boggy tumor was found in Douglas' pouch. Dr. Coe operated by the vaginal route, removing the tube from which an abortion had taken place, being obliged to remove the uterus also, not only because of the free hæmorrhage which could not otherwise be controlled, but in order to favor drainage. From the appearance of the membrane removed, one of the gentlemen assisting him expressed the opinion that it might be a case of incom-

plete uterine abortion, and not one of ectopic gestation at all, so close was its resemblance to the decidua of normal pregnancy. The second patient gave a similar history, but without pelvic tumor. There was the same irregular discharge in both cases, and the same kind of membrane was removed by the curette; but in the former there was ectopic pregnancy, in the latter early uterine pregnancy with incomplete abortion.

Dr. H. N. VINEBERG, in discussing the President's cases, related one in illustration of the difficulties of diagnosis in ectopic gestation. A woman, married twelve months, had a miscarriage in June, for which she was curetted by her physician, after which she menstruated normally for two periods, the last one being in August. In November slight flow, then recurring hæmorrhages of two or three days' duration and at intervals of a similar period. Her physician assured him nothing had been passed like decidua or ovum. The patient thought she was pregnant, and a second physician thought he could hear fœtal heart sounds. When Dr. Vineberg saw her about ten days ago she was supposed to be four or five months pregnant. He found the uterus slightly enlarged and soft, the cervix closed. To the left of the uterus a tumor about the size of a hen's egg, elastic and somewhat painful on pressure. What made the case puzzling to him was the fact that the patient had had no pain at any time, nor any symptoms pointing to intra-abdominal hæmorrhage. His diagnosis lay between ectopic gestation and an ovarian cyst, and operation revealed an ovarian cyst about the size of a hen's egg. From within the uterus considerable decidual membrane was removed by curette. Another interesting fact was that he had to dilate the cervix two or three times before he could curette, it was so tight.

The woman had a mitral stenosis which caused him some anxiety during anæsthesia, but she passed through this well. The second day after the operation the pulse went up rather suddenly to 130, the temperature to above 102° F., and signs of collapse became manifest. No evidence of peritonitis or sepsis. Other agents than morphine had no effect. The third day the patient was in good condition and he expressed the opinion that all danger was over, but shortly afterward, when the nurse was giving an enema, the patient complained of pain in the region of the heart, became unconscious, and had no pulse at the wrist. The patient was revived by various agents and given morphine. The next few days the pulse varied from 130 to 150. The third or fourth day she vomited dark-colored material, which looked like dark blood, and passed some by stool, pointing to capillary hæm-

orrhage in the stomach and intestine. The temperature and pulse had since become nearly normal. The case was puzzling in several respects. The temperature pointed to sepsis, but no other evidence of this was present, for there was no distention, the tongue was moist, flatus had been passed within forty hours after operation, and she had two or more stools before the third day had elapsed. In addition, during the critical periods she was bathed in perspiration. The abdominal wound was healthy.

Dr. EGBERT H. GRANDIN said it seemed to him that the more he saw of ectopic gestation the less he knew about it from the standpoint of symptoms. It was a sort of guesswork usually whether the condition existed or not. That was the opinion which he had reached from seeing thirteen cases—eleven in private practice, two in hospitals. In none of these cases was he able to make a positive diagnosis of ectopic gestation, but there was a strong presumption of its presence, and he regarded exploration as safer than expectancy. The description of ectopic gestation given in the books would, in his opinion, have to be rewritten. He had never seen passage of decidual membrane, yet this was copied from book to book as one of the symptoms. Again, he thought the less stress we laid on colicky pain the better. A typical hæmorrhage was most suggestive. It was not normal for a woman presenting rational signs of pregnancy to have hæmorrhages, and the very existence of recurring hæmorrhages called for examination under anæsthesia. He had come to agree with the opinion expressed by Dr. Janvrin many years ago—that colicky pains pointed to rupture and hæmorrhage. We ought not, therefore, to wait for these before operating. His own cases which gave a history of colicky pain were found to have at operation the belly full of blood. In other words, the pains had been associated with hæmorrhage. He had come to look upon a woman giving the history of pregnancy and irregular hæmorrhage as a very suspicious individual, requiring examination, probably under anæsthesia, and calling for operation if enlargement be found in one or the other tube. He looked upon a clean cut into the abdomen for exploration as safer than expectancy in such a case.

Between January 1 and January 15, 1896, he had seen four cases of ectopic pregnancy, three in consultation. One was complicated by ovarian abscess; removal by vagina; recovery. Another, a personal case, operation by vagina; recovery. In a third, rupture; vaginal and abdominal incision; recovery. The fourth case had been seen by a number of gentlemen; there was a difference of opinion as to whether there was intraperitoneal or extraperitoneal rupture. Abdominal



section ; drainage ; death. This case was at the time of operation by a distinguished New Yorker in a very unfavorable condition, however, for any operation.

Dr. EDEBOHLS asked Dr. Vineberg why he thought he had removed decidua and not growth from hyperplastic endometritis, which was often associated with ovarian disturbance of various kinds.

Dr. VINEBERG said the macroscopic appearances were those of decidua, and he did not doubt but what microscopical examination would confirm this view.

Dr. ANDREW F. CURRIER queried whether the hemorrhage from the stomach and from the anus, and the symptoms of collapse, were not due to rupture of the intestine. The case reminded him of one of appendicitis with sudden collapse, but without hæmorrhage, in which there was rupture.

Dr. VINEBERG thought he could answer positively that no injury had been inflicted on the bowel. The hæmorrhage could be accounted for by stasis due to overloading of the right heart, which was dilated. Besides, if there had been perforation of the intestine there would probably have developed fatal peritonitis and fæcal fistula.

Dr. FREDERICK W. JOHNSON, of Boston, read a paper, by invitation, entitled

*The Alexander Operation.*

By F. W. JOHNSON, M. D.,

(See page 457.)

DISCUSSION.

Dr. GEORGE M. EDEBOHLS thanked Dr. Johnson for his valuable paper and expressed agreeable surprise to learn that there were so many operators in Boston shortening the round ligaments on an extensive scale and with enthusiasm.

We were ready now to carry the discussion as to the relative merits of the various retroversion operations to a higher plane than that of mere technique and immediate and remote anatomical results.

Let us take the undisputed field for the operation of shortening the round ligaments—that in which it successfully challenges all comers. He referred to cases of uncomplicated retroversion, with no adhesions of uterus, tubes, and ovaries, and with normal-sized annexa. In this class of cases the operation had two principal rivals—vaginal fixation of the uterus and ventral fixation—or, as now designated, *vaginafixura*

*uteri* and *ventrifixura uteri*, together with their many modifications, some of which are not taken seriously by even their originators. Dr. Edebohls was willing to admit that an anatomical cure of retroversion could be obtained by any of these methods in from ninety to one hundred per cent. of cases by a proper technique and a capable operator. Mackenrodt figures ten per cent. of failures for vaginal fixation. Kellogg, who has probably had the largest individual experience in shortening the round ligaments, writes Dr. Edebohls: "I have done the operation a few more than five hundred times, and have had failures or partial failures in less than five per cent. of the cases." Dr. Edebohls' own experience, embracing over one hundred cases, tallies with this. In ventral fixation there is no reason why even the average operator should not obtain from ninety-five to one hundred per cent. of anatomical cures.

The *quality* of the cure, however, was an entirely different matter, especially to the patient. After a successful shortening of the round ligaments, the normal physiological mobility of the uterus remained unimpaired. The more successful, however, a ventral fixation or a vaginal fixation, the greater the abnormalities established within the patient's abdomen or pelvis. It was repugnant to every surgical instinct to create adhesions in the peritoneal cavity unnecessarily.

We come to the higher standard by which the relative merits of these operations is to be tested, that of their greater or less interference with the *functions* of the uterus—childbearing and childbirth.

First, as regards pregnancy and labor following *vaginæfixura uteri*, Strassmann has recently recorded the following disturbances as having been noted: (a) Disorders of various kinds and pain in the cicatrix (Dührssen, six cases). (b) Abortions: Twenty-five per cent. at least in Dührssen's cases; over twenty-seven per cent. in his own. (c) Vesical pain and disturbances during gestation. Of disasters at the time of labor there are recorded: 1 (Strassmann). Transverse presentation; prolapse of funis; very difficult version due to abnormal conditions established by vaginal fixation; severe post-partum hæmorrhage; rupture at site of cicatrix. 2 (Strassmann and Graefe). Delivery *per vaginam* impossible; cervix above the promontory of sacrum and pointing upward; Porro operation; rupture of vagina; death from hæmorrhage into peritoneal cavity. 3 (Wertheim). Version rendered necessary as well as exceedingly difficult and dangerous by the same situation of cervix as in No. 2. In the discussion following the reading of Strassmann's paper, other cases of serious disturbances of pregnancy and parturition were brought to light, and anxiety

expressed for the ultimate fate of the already numerous victims of the yet young operation. Bockelmann estimated that there were in Berlin alone about a thousand women with the dire possibilities of *vaginæfixura* gestation and delivery ahead of them. Dr. Edebohls thought that in New York there were perhaps two hundred such unfortunates, and expressed the hope that nobody would dare to add to their number. With the evidence now in, he would neither perform nor sanction a vaginal fixation in a woman liable to future pregnancies. Mackenrodt, the originator, or, perhaps more correctly, one of the originators and chief champions of vaginal fixation, has formally renounced the operation for the reasons just recorded. Unfortunately, he has already adopted another unpromising child in the shape of *vesicæfixura uteri*, the only novelty about which is that he performs the operation *per vaginam* instead of from above.

Secondly, as regards pregnancy and labor after *ventrifixura uteri*. Milaender has collected fifty-four confinements at term after ventral fixation, with eleven difficult labors—four forceps, two Cæsarean sections, four versions, one foot-first birth. In our own country there are ominous rumors in the air, especially in the neighborhood of Philadelphia, of serious operation rendered necessary in labor on account of previous ventral fixation of the uterus. Dr. Edebohls had performed ventral fixation of the uterus seventy-three times. In thirty-four of these patients both ovaries and tubes were removed; six were unmarried; seven over forty years of age. This left twenty-six cases liable to pregnancy, in eight of whom he had knowledge of subsequent pregnancy. Of these eight patients, one produced a miscarriage at the second month, one died of heart disease on the eve of confinement at term, one died septic from retention of a dead foetus of seven or eight months, five were safely and easily delivered of living children at term, one of them by forceps. Decision as to the effect of ventral fixation upon pregnancy and labor must be reserved until further evidence is produced. This much, however, is certain: that ventral fixation will, in this respect, not bear comparison with shortening of the round ligaments. With the exception of a drawing pain beginning with the eighth month, reported in a few cases, difficulties in pregnancy or labor following shortening of the round ligaments and due to the operation have not been noted.

In speaking of the technique of the operation of shortening the round ligaments, Dr. Edebohls would confine himself to the discussion of a few general principles, reserving details for a paper which he expected soon to prepare. There are three essentials to a successful

operation: 1. To find the round ligament. 2. To draw out or shorten it. 3. To anchor the distal end of the shortened ligament properly.

To find the round ligament, Alexander searched for it at the external ring. If unsuccessful in finding it there, he, on occasion, slit open the anterior wall of the canal and picked up the ligament in the course of the canal. The majority of operators, even at the present day, follow the same method. Kellogg was the first to suggest and practice as a routine procedure a small puncture of the anterior wall of the canal, through which he fished for and drew out the round ligament. Newman, of Chicago, following a suggestion of Dr. Frank, punctured the anterior wall of the canal a little higher up than Kellogg and claimed priority. His procedure, as far as can be learned from his very deficient and imperfect descriptions, differed in no essential or principle from that of Kellogg, except that Kellogg punctured the anterior wall of the canal over its middle; Newman, a trifle higher up—a distinction without a difference. Newman's first case was operated upon August 16, 1888. Some three months after, Kellogg read his paper (American Medical Association, Cincinnati, May, 1888), reporting seventy-three operations, of which forty-five were performed by his new method. In August, 1890 (International Medical Congress, Berlin), Dr. Edebohls reported eighteen cases operated upon by his own method—that of slitting open the anterior wall of the canal along its entire length *as a routine procedure*. Others—among them Alexander himself—had practiced this procedure in isolated instances when unable to find the ligament at the external ring. As far as his knowledge went, however, he was the first to propose and practice opening up the entire canal as an essential feature of each operation. Since then a number of others—Kuestner among the more recent—overlooking his paper, had published the method as their own. Drawing out of the round ligament is done to greater advantage at the internal ring with the canal widely open than at the external ring or through a small slit in the anterior wall of the canal. As regards fastening the shortened ligament, Dr. Edebohls deprecated the attachment of the ligament in places where Nature never intended it to be fastened, as well as that of interweaving the ligament with the fascia of the external oblique. As he performed the operation at present, he first slit open the anterior wall of the canal along the entire length of the latter, picked up the ligament in the canal, drew it out of the abdomen at the internal ring, stripping back its peritoneal investment until the cornu of the uterus could be felt at the internal ring. After doing the same on the opposite side he

fastened the shortened ligament in the canal so that it would occupy its normal site and renew its normal attachments as nearly as possible, while at the same time he endeavored to secure against a possible hernia by finishing the operation as a Bassini. In other words, he closed the internal ring and sewed the fibers of the internal oblique to Poupart's ligament by a buried running suture of forty-day catgut. Each loop of the running suture pierced the internal oblique, round ligament, and Poupart's ligament, fastening the round ligament in its normal situation behind and beneath the internal oblique. The last loop pierced the round ligament and both pillars of the external ring, the running suture being then continued upward to close the incision in the fascia of the external oblique.

Dr. EDEBOHLS congratulated Dr. Johnson on always having found both ligaments in all of his cases but one, if he understood him correctly. He himself, with less than one half Dr. Johnson's number of cases, had found four round ligaments, which after leaving the abdomen at the internal ring, instead of following the usual course, downward and inward along the canal, turned directly upward and outward toward the anterior superior iliac spine to be inserted into the outer half of Poupart's ligament and into the transversalis fascia on its external aspect. In two patients one ligament, and in one patient both ligaments, took this course. Each of the four ligaments was cut away from its abnormal attachment, shortened, and refastened in its normal place in the canal. As the matter stood to-day, he considered it the duty of every specialist in gynæcology to make himself master of some one method of shortening the round ligaments. Where shortening of the round ligaments was applicable, the other retroversion operations were no longer justifiable.

Dr. H. N. VINEBERG said he had not intended to take part in the discussion, but since Dr. Edebohls had raised the question of vaginal fixation he thought it only right that the other aspect should be presented. It was quite true, as he had stated, that vaginal fixation was in bad odor in Germany at the present time because of a few cases having been reported of interference at labor; but on closer study it would be found that there was another reason for the difficulties encountered in those cases. The patients had been operated upon after Dührssen's method, which is faulty in technique. Dührssen made transverse incision at the junction of the cervix with the vagina, sewing the uterus to the vaginal wall at that point. The result was that either the uterus was almost doubled upon itself or the cervix thrown upward toward the promontory. It was the latter condition that



caused difficulty in labor. In cases in which the operation had been done according to Mackenrodt's method there had been no trouble during subsequent labor.

Dr. Vineberg had had four cases in which pregnancy had followed vaginal fixation. One patient brought on miscarriage intentionally at the fourth month. She had had no trouble. The second one Dr. Vineberg delivered at term; easy labor, no trouble whatever. The third one had normal gestation; waters broke without pain the day before labor, which set in on the following day, and within two hours the child was born. Uterus normal and in normal position. The fourth patient had now passed the sixth month; the uterus was in normal position, and except for the scar, one could not tell that there had been vaginal fixation.

It had been stated by many that the Alexander operation should be limited to cases of movable retroflexion, yet it was just this class of cases which others had claimed could be cured by pessary independent of operative procedure. In looking over Dr. Johnson's tables, he had observed that in many cases a pessary was worn some months after operation. The question might arise whether the pessary in itself might not have been sufficient to effect a cure.

Regarding danger of hernia after the Alexander operation, Dr. Vineberg had seen three or four cases within the last two years. Dr. De Garmo had written him that he had seen twelve cases of inguinal hernia after operation by five of the best operators, and Dr. Coley had written him that he had seen hernia nine times, all within two years. Therefore hernia was not of uncommon occurrence, and in looking over the tables of the author one might expect it in view of the frequency of abscess, for abscess meant weakening of the abdominal wall.

Vaginal fixation did not come into the same category as the Alexander operation. It had a much broader indication, and was rather a rival of ventral fixation. Dr. Edebohls had shown that there were some bad results from ventral fixation during pregnancy and labor, and Dr. Vineberg had himself had one case which came near aborting about the fourth month. The patient, however, went to term and was delivered normally. There was albuminuria, which, of course, could not be attributed to the operation. Mackenrodt had abandoned the operation of vaginal fixation in favor of vesical fixation largely because of the bitter fight which had been waged by those who had brought forward various modifications. Dr. Vineberg could not agree with Dr. Edebohls that we ought yet to abandon vaginal fixation. With proper technique he knew the operation had given good results

anatomically and clinically, and had not been attended with any difficulty either during gestation or during labor, as had been shown by his own cases and those reported abroad in which the Dührssen method had *not* been followed. When the uppermost fixation suture is passed through the uterus a centimetre below the insertion of the tubes and through the vaginal flaps near the urethral opening, there need be no fear of disturbances arising from the enlargement of the uterus during pregnancy.

Dr. W. M. POLK expressed his interest in the subject and in the paper. Dr. Vineberg's remarks upon the many modifications of the vaginal procedure indirectly reflected much credit upon Alexander's operation, for this remained essentially the same as it had been first practiced by its originator.

To-day the central question for discussion was, as Dr. Edebohls had stated, the influence on pregnancy and labor. By that would be determined the relative superiority or propriety of the various methods of retaining the uterus which had been suggested. His own experience had coincided with that of Dr. Edebohls. Since 1885 he had done Alexander's operation one hundred and twenty-three times. With reference to the anatomical and therapeutic effects of vaginal and ventral fixation as compared with the Alexander, he believed firmly that the latter was the superior operation. That the good results were not due to wearing a pessary was shown by the fact that his own were like those related by the author and Dr. Edebohls, yet he rarely inserted a pessary after shortening the round ligaments.

In cases of adherent appendages or adherent uterus with retroversion it was not necessary to open the abdomen above. Dr. Polk made an incision into the posterior vaginal fornix, broke up the adhesions, and did the Alexander. The results were just as good. An illustrative case was that of a woman who had been treated for two years for fixed retroverted uterus. The case coming under Dr. Polk's care, he opened the vault of the vagina, broke up adhesions of appendages and uterus, and lifted the latter by the round ligaments after the method of Alexander. Lately he had occasion to examine the patient, and found the ovaries and uterus, which had been much enlarged, shrunken to nearly normal size. The woman was practically cured, and was able to marry and discharge all the duties of a wife without inconvenience.

Cases which had bothered Dr. Polk somewhat were those in which, following salpingo-oöphoritis and peritonitis such as that just reported, the round ligaments had been involved in the acute process

as it affected the broad ligament, and had consequently become adherent to their peritoneal covering. Here he had met with his first failure from a break in the ligament on attempting to draw it out. In such cases he now found that the ligaments could be shortened through an anterior vaginal opening, one being drawn down at a time and shortened internally after the manner suggested by Dr. Wylie, or the two be reunited in front of the uterus, as he himself had once suggested. This was only permissible where one failed to secure the ligaments and shorten them by Alexander's method and route.

Dr. Polk had had but one fatal case, and death in that instance could hardly be attributed to the operation, as it occurred two months and a half subsequently of mania. In one case pus developed after the use of catgut and followed the round ligaments to the uterus, so that water in the washing would flow from one inguinal ring to the other. That was sufficient to deter him from using that material, even if sterilized by the most approved method. He had also abandoned silk because occasionally it gave rise to sinuses.

He then tried silkworm gut, introduced as a "figure of eight." Pass the suture through the inner pillar of the ring, then through the top of the round ligament, which is drawn taut through the opening, then through the external pillar; the ends are now crossed; that coming from the external pillar is passed through the fat and skin on the inside of the incision, and the end coming from the internal pillar is passed through the fat and skin on the outside of the incision. When drawn tight the effect is to bring the pillars together, and when tied, both superficial layers as well as pillars were held firmly together. In this manner one obtained practically the same result as from a double row of sutures. Leave ten days. The only other substance which could be used in this manner was silver wire, and that of a fine variety.

It was interesting to recall the fact that at one of the first discussions upon this subject (1886), participated in by Drs. Lee, Hunter, and other older members of the New York Obstetrical Society, many of the points brought out to-day were touched upon, and while the Alexander operation was then looked upon a little askance, time had fully justified its practice. It was stated then, as to-day, that while at first some difficulty was experienced in finding the round ligaments, this difficulty disappeared with increasing knowledge of anatomy of the parts and experience with the operation.

Dr. LE ROY BROWN had operated by Alexander's method about thirty times, and had looked after some sixty of Dr. Cleveland's cases

at the Woman's Hospital. In only eight per cent. had the uterus fallen backward; most of these were among the first patients when buried silkworm gut was used, and was followed by pus. Of the entire number, he had subsequently confined five. Four had an easy normal labor. The fifth had no trouble, further than that the position was occipito-posterior. The uterus was in good position subsequent to labor in all. Dr. Cleveland had also informed him of the uneventful confinement of three other cases.

Dr. Cleveland's method of operating, which he had followed, was to use silkworm-gut suture, running entirely through the ligament pillars of the external ring and skin. It had been their custom to introduce a pessary for four months.

In some cases the pain in the back, etc., of which the patients complained before the operation, continued subsequently, in spite of the fact that the uterus had been restored to an excellent position and had become of normal size, and that no other disease was apparent. In three cases of symptomatic failure the operation was performed in the same manner as in all other cases, where the relief from symptoms had been thorough. He asked Dr. Johnson his experience in these kinds of cases, and what was the probable explanation of the failures to relieve the symptoms for which the operation had been done.

Dr. JOHNSON, replying to the question asked by Dr. Broun, said he had seen similar cases, and had thought that the retroversion was not wholly to blame for the pain in the back, although it might have aggravated it.

Dr. AUGUSTIN H. GOELET described a method of preparing and preserving silkworm gut for suture, which insured its absolute sterility and rendered it pliable—nearly as pliable as catgut. Each strand is wiped off separately with a pledget of cotton or gauze soaked in ether; then the frayed ends are cut off, and it is placed in a glass tube long enough to permit the strands to lie out straight. The tube is then filled with a two-per-cent. solution of lysol and stopped at one end with a rubber cork, the other end being stopped temporarily with a plug of cotton. The tube is then placed in a sterilizer, with the one end above the water, and it is boiled for twenty minutes. It is then removed, and the cotton is replaced by another rubber cork. He has found that boiling the silkworm gut in lysol solution renders it quite pliable, and by preserving it in this manner it is convenient for use, each strand being withdrawn by means of sterilized forceps as it is needed during an operation. Those not used are not handled.

Dr. AUGUSTIN H. GOELET showed an angular tenaculum forceps for use in vaginal and pelvic work which could be used in place of the straight tenaculum forceps and Volsella and would not tear out, as these instruments frequently do, because the strain curves against the side of the curved points instead of against the points. The instrument is similar to the ordinary tenaculum forceps except that it is bent at an obtuse angle about half an inch from the end. They are made both with and without a catch on the handle, and in two sizes—one stout and heavy for heavy abdominal work.

Another feature of the instrument is that when used in vaginal work the shank of the instrument lies along the vaginal wall to one side, out of the way.

Dr. AUGUSTIN H. GOELET showed a set of cervix knives (two) designed for use in trachelorrhaphy to facilitate denudation. With this knife he thought the denudation could be done more rapidly and more satisfactorily than with the scissors, because with it it is possible to cut just where it is desired to cut, and no trimming up is necessary afterward. The instrument consists of a handle and slender shank of metal similar to a tenaculum, terminating in a short blade with double cutting edges set at an angle with the shaft. It is unlike any other knife designed for this purpose. In using the knife the angle of the laceration is seized with a tenaculum, and the blade of the knife is made to transfix the cervix on one side at the extreme upper point to which it is intended to extend the denudation. The tenaculum is now removed from the angle and fastened in the lower margin of the lip of the cervix on the same side, and, drawing the knife blade down, the denudation of that side is accomplished with one stroke. The knife is again inserted on the opposite lip, which is denuded in a similar manner. If now the wedge of tissue at the angle remains attached it is severed by cutting upward with the reverse edge of the blade. By holding the knife properly, a clean and complete denudation is accomplished and there is no ridge of tissue on the inner margin left to be trimmed off, as often happens when scissors are used.

By using this knife, operating with the patient upon the back and using a curved needle with silkworm-gut sutures, he could do the operation in just one half the time usually occupied by the ordinary method of doing this operation.

The needle which he used was a half-curved, round needle with a flat spear point. This needle he had found would penetrate easily the toughest cervix, and he had never had one break.



*Ovarian Cystoma and Large Cystic Ovary.*

DR. AUGUSTIN H. GOELET showed two specimens—one a small ovarian cystoma, and the other a large cystic ovary removed from a patient twenty years old. The patient, Miss W., aged twenty years, was sent to him January 9th by her physician, Dr. Proctor, of Englewood, N. J., for the relief of an intense dysmenorrhœa, from which she has suffered since puberty at thirteen years. The pain continued throughout the period, and was so severe that she was compelled to remain in bed. Menstruation was always very free, lasting six or seven days. During the interval she suffered with backache, and for the past year she had had considerable pelvic pain with, at times, sharp pain in the right ovarian region. For the past two years the dysmenorrhœa had been very much more severe, except for the last three periods, when she had no severe pain; but there was a menorrhagia which continued for two weeks, necessitating the use of ergot. She had always been subject to chronic constipation, but had had no sickness except measles when seven years old.

The patient had been examined twice previously by a physician in this city—once a year ago, and again in September last—but the cause of her suffering was not then discovered, and nothing was done for her relief.

Examination revealed an enlarged uterus measuring three inches and a quarter, with a granular catarrhal endometritis. On the right of the uterus, which seemed freely movable, there was a tumor the size of an egg, which was diagnosed as a small ovarian cystoma. The left ovary was the size of a large walnut.

The patient had suffered so much, and her general health had in consequence been so much impaired, that she readily consented, by advice of her physician, to enter my sanatorium for operation.

The operation was done January 15th, both ovaries being removed by abdominal section. Curettage was done at the same time. There were some adhesions on the posterior face of the uterus, and a knuckle of intestine was adherent to the tumor on the right. The right tube was removed with the tumor, but the tube on the other side was left. Instead of transfixing and tying off with a double ligature, the attachment to the broad ligaments was tied off in sections, taking care to secure the ovarian artery on each side by separate ligature.

The patient has made an uninterrupted recovery, the highest temperature recorded being 100.4° twenty-four hours after operation.

She is now up and doing well ; says she feels better than she ever remembers feeling before. At the first menstrual period following the operation there was only a very slight pink stain on one occasion.

The points of interest in the case are that adhesions were found, though there was no history of peritonitis, and the menorrhagia during the last three months, which could not be accounted for.

The case was reported to emphasize the importance of early attention to young girls who suffer severe dysmenorrhœa, with the view of removing the cause when it can be discovered and is removable, and thus avoiding ovarian or uterine disease.

Dr. BROUN could not see how one could get tissue out of the angle of the cervix with the knife shown better than with scissors.

Dr. VINEBERG would prefer not to use catgut taken from lysol, for operators now were seeking asepsis, and wished to avoid the irritating effects of an antiseptic solution on sutures.

Dr. GRANDIN had long since come to the conclusion that the best way to do trachelorrhaphy was to place the patient on her back and use a knife instead of scissors, but he did not think special instruments like the knife presented were necessary.

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## THE STATUS OF GYNÆCOLOGY ABROAD.

### RUSSIA.

#### *The Importance of Early Recognition of Uterine Cancer.*

L. KESSLER (*St. Petersburg. med. Woch.*, September 28, 1895) reports three cases of carcinoma uteri that have greatly impressed him with the necessity for its early recognition.

The first case was that of an apparently healthy countrywoman who, a year and a half before consulting the author, had suffered from irregular hæmorrhages. For these she had taken ergot, which seemed to control the bleeding. Upon examination, the whole vault of the vagina was found to be involved, and the surrounding tissue so infiltrated that an operation was out of the question.

The second patient was forty-six years old and had had three children. One year before consulting the author she had noticed a slight bloody discharge following coitus ; then slight irregular hæmorrhages appeared. She sought medical advice, and was given ergot,

and finally curetted, reassured, and sent home. The bleeding having returned, she consulted the author. It was then found that the growth had progressed too far to warrant any operative procedure. The shock and prostration of the patient upon learning her condition was distressing in the extreme.

The third case was that of a young Jewish woman of twenty-two years, who three months ago consulted a physician on account of a profuse vaginal discharge. Vaginal douches were recommended. One month later an operation was advised, but, as she was not told the nature of her trouble, she did not come to the hospital for still another month. At this time, but three months after the appearance of the first symptom, she had a continuous sero-aqueous-purulent discharge mixed with small particles of tissue. The upper part of the vagina and the cervix was a soft mass of ulcerating tissue. The urethra was infiltrated, and the inguinal glands were enlarged, hard, and painful. The disease had progressed much too far for operation. The author reports these cases because they show the rapidity with which the disease progresses, and illustrate the importance of an early diagnosis. When the diagnosis is made early a vaginal hysterectomy can be performed with a mortality of but five per cent.

Winter estimates that of the cases that present themselves at his clinic twenty-five per cent. are operable, and that of this number seven per cent. show no evidence of recurrence five years after the operation. In other countries the number of operable cases is much less in proportion than in Germany. This shows the lack of ability on the part of the general practitioner in recognizing cancer in its early stages, and that patients do not attach sufficient importance to irregular uterine hæmorrhage and to vaginal discharges.

The diagnosis of uterine carcinoma is not very difficult in the majority of cases if the practitioner would only keep its possibility in mind. It is by no means always associated with cachexia, a miserable pale aspect, suffering expression of face, frequent hæmorrhages, discolored, and foetid discharges, as the majority of text-books would lead one to believe. A serous discharge, a bleeding between menstrual periods, and especially a hæmorrhage after the menopause, should make one very suspicious of a malignant disease, and a thorough examination should be made without delay. It is not expected of a general practitioner that he should be able to perform a hysterectomy for carcinoma, but he should be able to make a diagnosis.

The author deprecates the practice of giving ergot or styptics in uterine hæmorrhages when there is suspicion of carcinoma, because

while using these drugs the disease is progressing and valuable time is lost in taking out the uterus.

He believes that the laity should be taught to recognize the early symptoms of malignant disease, so that they may seek medical aid before the disease has progressed far.

#### GERMANY.

##### *On Lacerations of the Rectum complicating Abdominal Operations.*

M. SÄNGER (*Cent für Gyn.*, November 23, 1895) insists that the frequency of intestinal perforation that occurs during the performance of colpo-hysterectomy must be considered among the objections to this operation. The operators in whose practice occurs the greatest number of hysterectomies report a correspondingly large number of intestinal injuries. These accidents also happen in cœlio-salpingo-oöphorectomy. The injury to the intestines usually occurs in cases complicated with dense and diffuse adhesions. If laceration of the rectum occurs during the performance of cœliotomy, one can close the wound directly; but if it occurs during the vaginal operation, and is discovered, it may be necessary to do a cœliotomy in order to repair the injury.

Adhesions of the small intestines occur in many of the cases requiring cœliotomy, yet penetration is exceedingly rare, because under the guidance of the eye and with proper care it is nearly always possible to loosen the intestine without opening it.

Notwithstanding the advances made in intestinal surgery from entero-anastomosis to Murphy's button, injuries of the intestines inflicted during the performance of a cœliotomy are always serious accidents, because they complicate the primary operation, which alone generally taxes the vitality of the patient to the utmost. The case reported by the author was that of a woman of thirty-seven years who presented a double pyosalpinx with a retroverted and firmly adherent uterus. The abdomen was opened while the patient was in the Trendelenburg posture. The appendages were found to be matted together in the *cul-de-sac* and bound down by firm adhesions. The separation of the adhesions was difficult and bloody. By careful inspection it was found that there was a laceration of the rectum at the lower part of the *cul-de-sac*, through which a small amount of fæcal matter passed. The tear, which was on a level with the third sacral vertebra, was nearly transverse in direction and extended five or six centimetres. On account of the great depth of the tear and the im-

mobility of the rectum, some sutures were applied with great difficulty. A tampon drain was then introduced after the manner of Mikulicz. The gauze strips, which were removed gradually, had no faecal odor, but when the "handkerchief" was taken out the odor was pronounced. On the eleventh day faeces came through the abdominal wound, but they have disappeared gradually, and at the present time a narrow suppurating sinus exists, which may be expected to close very soon. The author considers the favorable issue of this case to be in great part due to Mikulicz' tampon drainage.

The procedures that might have been undertaken in this case were complete division of the rectum with suturing of the upper end into the abdominal wound, or to suture the laceration and do a colotomy in order to favor the union of the laceration. Both of these seem impracticable. The best procedure, which was unknown to us at that time, is the one devised by Howard Kelly—sigmoido-proctotomy. In this operation the sigmoid flexure was divided transversely. The margin of the upper end was surrounded by button-hole sutures with the ends left long. A longitudinal slit was then made in the rectum. A forceps was passed through the anus and through the slit in the rectum, and the ends of the sutures grasped and the extremity of the flexure drawn through the slit into the rectum. The patient recovered. The important point in the treatment of these cases is to close off the rest of the abdominal cavity. This may sometimes be accomplished by allowing the rectal fistula to open into the vagina and close the cavity over it.

In conclusion, the procedures that best meet the indications are as follows :

1. By direct sutures with drainage by Mikulicz' method.
  2. By direct sutures and formation of an intermediate wall with drainage of the space thus inclosed. If this can be readily done it is better; but if much time is to be spent, the first and simpler method should be used.
  3. The sigmoido-proctotomy, when circumstances will permit, is the ideal operation, as it allows the complete closure of the abdominal cavity.
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## OBSTETRICS.

## AMERICAN.

*Fatal Post partum Hæmorrhage.*

EDWARD P. DAVIS (*Philadelphia Polyclinic*, January 18, 1896) says that it has been asserted that in a healthy patient the occurrence of fatal post-partum hæmorrhage must be ascribed to improper treatment, but cites a case illustrating unusual conditions. The patient, a colored woman, poorly nourished, six months pregnant, gave a history of grip, several years previous, and of a miscarriage followed by an alarming hæmorrhage. She complained of weak and rapid heart action, and believed the fœtus to be dead. On examination, fœtal heart sounds and movements were absent, the uterus soft, os not dilated, breath fœtid, and slight fever. Cause of fœtal death unknown, but, as patient had lost strength, it was thought best to induce labor. This was done at her home by the introduction of bougies under thoroughly antiseptic precautions; an arm having prolapsed, the patient was sent to the Polyclinic Hospital. On admission, patient's pulse was above 100, appearance apathetic, and having weak uterine contractions. Os and cervix three fourths dilated. The fœtus lay obliquely in the pelvis, the arm was replaced, and a foot was brought down. Owing to the patient's weak condition, anæsthesia was not used. The macerated child was slowly delivered by traction on the legs until only the head remained in the womb. As this could not be delivered without violence, the fœtus was beheaded, the vagina douched, os and cervix tamponed with iodoform gauze. There was slight oozing of dark grumous blood which did not clot. Patient was given alcohol and food, and ten hours later, after slight contractions of the uterus and a slight flow of blood had been observed, the head of the fœtus was found in the vagina. After delivery the placenta was loosened and removed by the hand; uterus emptied and douched with hot creolin solution. The patient suffered little pain and no alarming hæmorrhage occurred. The patient was given strychnine and ergot, with rectal injections of whisky and milk. A persistent but moderate flow of dark fluid blood, not clotting, followed the emptying of the uterus, which was tamponed with iodoform gauze. Two hours later the patient was found in collapse, all efforts to check the oozing of blood having failed. Transfusion was at once employed, and the faradic current applied to the uterus. This caused contraction of the uterus,

but the oozing continued. The patient was put thoroughly under the influence of opium, and as the oozing lessened, stimulants and external heat were employed. She died, however, of acute anæmia ten hours after the uterus was emptied. No post-mortem examination could be obtained.

In reviewing this case, two elements are noteworthy: the predisposition to bleeding noted in a former miscarriage, and the depressed condition of the heart and nerve centers, shown by non-contraction of the uterus, rapid, feeble pulse, and lack of response to stimulants. The other factor was the altered condition of the blood; the absence of the clot, dark color, and persistent oozing indicated profound anæmia. The production of labor was demanded by the patient's weak septic condition, and was unsuccessful, due to the combination of the two conditions noted above.

*Dilatation of the Parturient Cervix, with Exhibition of New Instruments.*

W. C. BUNCE (*Cleveland Med. Gazette*, January, 1896), after reviewing the conditions of rigid cervix and the ordinary treatment, presented a new instrument comprised of two blades retained in place by a lock, with a graduated thread and three springs for controlling its power or giving any strength desired. All parts are removable. By means of a movable nut and thread the dilating surfaces reduce to the size of the little finger; the points of the blades are beveled and slightly turned outward and can be introduced into any cervix that will admit the point of the index finger. Releasing the nut allows the springs to act on the blades and dilatation begins. The pressure, being elastic, can be overcome by the muscular contractions but, being continuous, must in time tire out the intermittent muscular action. It is surprising to see the small amount of continuous pressure required to effect this. By means of the screw the extent of dilatation can be graduated to any extent. Twenty minutes is the longest time required as yet to dilate sufficiently for the application of the forceps. A pledget of cotton wet with cocaine solution applied to the cervix a few moments before introducing the instrument will relieve any pain it may cause and aid in the dilatation. The instrument is also serviceable for dilatation for retained secundines and other conditions.

## FRANCE.

*Placenta Prævia ; Spontaneous Delivery by Passage of the Head through the Placenta.*

BRINDEAU (*Arch. de toc. et de Gyn.*, No. 9, 1895) details the case of a woman, aged twenty-nine years, pregnant for the fourth time ; previous parturitions were attended by excessive bleeding. On admission to hospital it was found that the membranes had ruptured the night before ; the cervix was undilated ; no pains present ; the foetal head could be felt through the lower uterine segment, period of gestation being the seventh month. Twenty-four hours after admission labor pains began, the cervix dilated to the size of a silver dollar, the membranes were absent, the scalp being felt. No placental tissue noticed at cervical margins ; no hæmorrhage present. The cervix dilated rapidly, and a living child, weighing about four pounds and a half, was delivered. No bleeding occurred during delivery. Some moments after delivery a free hæmorrhage occurred, momentarily checked by hot vaginal douches. The hæmorrhage becoming alarming, manual extraction of the placenta was performed. The placenta was found attached to the lower uterine segment close to the cervical opening all around. This was peeled off by the fingers, when the membranes were found to be firmly adherent also. These were detached in the same way. The placenta and membranes then came away entire. The membranes were found to be intact, attached to the margin of the placenta all around, forming a complete sac. In the center of the placental tissue was an opening six inches in diameter. The child had escaped through this opening in the placental tissue. This central spot must have been membranous in structure in order to rupture spontaneously during labor. The absence of all hæmorrhage during dilatation of the cervix and delivery was remarkable.

## GREAT BRITAIN.

*Soranus of Ephesus.*

PHILIP DYMACK TURNER (*Quarterly Med. Journal*, January, 1896) says that on the authority of Suidas we are told that there were two authors called Soranus of Ephesus, both of whom lived under the reigns of Trajan and Adrian (91-138 A. D.), and were the sons respectively of Menandu and Phœbe ; it is probable that they were one and the same person. Soranus' works are alluded to by various authors, but only fragments were believed to be preserved, the largest

being a book on acute and chronic diseases, translated into Latin by Cælius Aurelianus. Of the "Gynækologia," a chapter on the anatomy of the female genital organs is to be found in Oribasius, and a few chapters on diseases of women in Ætius and Paulus Ægineta. About 1835 a young German *savant*, F. R. Dietz, of Königsberg, discovered in the Royal Library at Paris in a Greek manuscript of the fifteenth century nearly the whole of the lost books of Soranus on midwifery and gynæcology. At Rome he found another copy less perfect in the Barberini Library. He began an edition in the original Greek, which was interrupted by his early death. Lubeck completed and published it in 1838. In 1869 a Latin edition was published by the Dutch scholar Ermerins. Not until 1894 did it reach a modern language, when a German edition appeared. Prof. Hongalt, of Nancy, has just completed a French edition. With regard to the importance of Soranus' work,

*First.*—It is the most thorough and complete treatise on midwifery and gynæcology of ancient times.

*Second.*—It is remarkable for its common sense and freedom from the superstition of that age.

*Third.*—Its discovery has revolutionized in some important respects the early history of midwifery.

The book is divided by Ermerins into sixty-six chapters; others are no doubt lost. The first is upon the qualification of a midwife, showing great common sense; he insists that she should be intelligent, possessed of retentive memory, instructed theoretically as well as practically, physically strong, quick in perception and gentle in touch, discreet, and free from superstition. In the chapter on menstruation he shows that it is wrong to lay down rigid rules about the quantity and duration of the menstrual flow, as it varies in health from two to seven days or more, and considers those women normal in their menstruation who, after the cessation of the flow, are strong, breathe freely, and are free from all disturbance, and have their forces unimpaired. If not so, the menstruation is abnormal. The quantity of the flow varies with the age, constitution, occupation, and mode of life of the woman. Flesh and exercise tend to diminish the flow, while idleness and lack of flesh tend to increase it.

He attributes the "longings" of pregnant women to gastric disturbances, and advises in the nausea of pregnancy a day's total abstinence from food, as such cases are overfed, and subsequently a very light diet; also recommends the application of a dry cup over the pylorus and also on the back opposite.

In a chapter on abortion he subscribes to the Hippocratic oath, and adds that "the function of the art of medicine is to guard and preserve whatever is generated by Nature," and also condemns the prevention of pregnancy; but adds that in some women, owing to bony and other deformities, it is better to produce abortion than to allow the case to go to term and then destroy the child in order to deliver it. He describes an obstetrical chair with a seat with a semi-lunar opening, which is precisely the same as that described in the sixteenth century by Rhodion, Rueff, and Ambrose Paré. He made the first allusion in history to mechanical aid in delivery, and, in speaking of the chair, says: "Some, indeed, add a projecting wheel to the lowest part of the chair, having at both ends a wheel, and on the rim of the wheel a wooden peg, in order that, in the extraction of the child, fillets may be attached to the arms or other parts of the fœtus, and the other extremity of the fillets to the peg on the wheel; and in this way they extract by turning the wheel, having no regard to the common rule that the extraction of the fœtus in cases of difficult labor ought to be accomplished only when the woman is in the recumbent posture." In the management of adherent placenta he advises the introduction of the whole hand into the uterus with gentleness, and the careful peeling off with the finger tips of the placenta. When it is all loosened it can be withdrawn by the hand, but condemns traction on the cord as liable to produce inversion of the uterus. Late ligation of the cord is advised in cases where the child has sustained the shock of a hard delivery. The custom of plunging the child into cold water is condemned; cold air is shock enough, he says.

The subject of version is of great importance when it is remembered that Ambrose Paré in 1550 is supposed to be the first who advised podalic version. He says: "It is necessary to restore the fœtus from an abnormal to a natural presentation. If the head lies to one side, we must insert the left hand, well greased, the finger nails being cut, and the points of the fingers applied to each other so as to narrow the hand (conical form). The introduction should be made when the os uteri is opened by the laws of Nature. The fœtus must then be seized and drawn over the orifice, aiding the version by the decubitus of the woman, placing the woman on the side opposite to that on which the fœtus lies. She should be supine and sloping (pelvis raised) when the child inclines to the hypogastrium, but prone and on her knees when it inclines backward to the lumbar region. If the head deviates and is impacted (engaged), it must be pushed



back and lifted up so as to recede from the os uteri and then straightened." (This may be taken to include the treatment of face presentation?) "If the fœtus puts forth a hand it must not be pulled upon, for it will become tightly wedged, and the head above pushed backward or to one side, or it may be dislocated or torn away. But the arm should be pushed back toward the vault of the womb, and by bending the elbow, place the arm straight along the flank and thigh. If both hands present, the same should be done with both. In case of a small head, extraction may be done by pulling on the arms." "If with the feet presenting, the body is inclined to one side, it must be altered and straightened, just as in the case of a head presentation. If the fœtus puts forth one foot, this again must on no account be seized and pulled on, for when the other leg is flexed it will more easily become impacted; the tips of the fingers must be applied to the perineal region of the fœtus, and must push it back toward the fundus uteri; then the hand must be inserted, and the second leg straightened out and extended by the side of the first. If both feet present, and one or both hands (arms) are bent up (above the head), the fœtus must be pushed back in a similar way, and the hands properly placed. If the legs are abducted, so that the fœtus rests on two different parts of the uterus, they must be brought together and conducted into the neighborhood of the orifice of the womb. If the child comes knees first, they must be thrust back and straightened, the child extended feet first. If it comes breech first, this also must be pushed back, and the feet brought down before extraction. If the fœtus lie transversely, so that its anterior or posterior surface presents, it must be pushed by the fingers to one side, so as to admit the hand, and the feet brought down, unless one extremity be nearer the os uteri than the other, in which case it should be turned by the more remote extremity rather than by the feet, for the head is the best presentation (all things being equal), unless the hands be above the head. If the fœtus is doubled with the convexity to the fundus and the two extremities lying against each other, at equal distances from the os uteri, we must first push back the other parts and bring down the feet. If the curvature is unequal, we must bring the curvature (convexity) to look toward the fundus, and then extract by the feet. If more than one fœtus are present, we must push them back into the womb, and extract them one by one. All these manœuvres must be executed with gentleness, and the parts irrigated with oil continuously. But if the child can not be extracted by these measures, on account of its size or impaction, more violent methods

must be employed, as the use of hands or embryotomy, and even if the child is dead the mother must be saved. Therefore it is necessary to recognize immediate danger, such as fever, nervous symptoms, violent inflammation. It is best to explain that there is little hope, especially so when gangrene occurs. Even when there is fainting, sweating, delirium, shivering imperceptible pulse, or convulsions, *one must not desist from giving all possible assistance.*"

(T. W. CLEVELAND, New York.)

## PÆDIATRICS.

### AMERICAN.

*Typhoid Fever in Young Children, being a Report of Cases occurring at Stamford, Conn., during the Epidemic of 1895.*

W. P. NORTHRUP (*Arch. of Pædiatrics*, January, 1896) gives the histories of seven cases of typhoid occurring in children, four of whom were under two years of age, showing that the susceptibility to this disease is very slight during the first three years of life, but that it may be overcome by the overwhelming poison present in a severe epidemic.

CASE I.—Age, thirteen months; presented characteristic typhoid condition. Easily aroused and quickly sank back into stupor; cried feebly; body sunken down into pillows; tongue dry; abdomen soft; spleen enlarged and easily felt. Typical eruption over abdomen, back, thorax, and thighs. The mother had nursed the child, but the father had fed it with milk twice a day. The father, an eight-year-old son, and the infant developed the disease. All recovered. The ætiology of the case was certain, the symptoms classic, and the diagnosis beyond doubt.

CASE II.—Age, twenty-two months. Death from pulmonary complications.

*Autopsy.*—The patient's mother tended a typhoid patient for three weeks. Both mother and child drank the milk; both developed typhoid on the same day. The eruption was typical, spleen enlarged, tongue dry; diarrhœa. Temperature ranged from 102.5° to 104.5° F. Cause of death, broncho-pneumonia. Autopsy showed swelling of Peyer's patches, swelling of solitary follicles of small and large intestines, marked swelling of mesenteric lymph nodes, spleen enlarged.

CASE III.—Age, sixteen months ; recovery. The child and a young man the only ones to drink milk in the house. Both had typhoid. Baby's symptoms were diarrhœa throughout illness ; probable eruption ; temperature  $104^{\circ}$  F. ; pulse 136 ; very anæmic and emaciated.

CASE IV.—Age, twenty-two months. Child fed on milk. Others in the family sick with typhoid. Was pale and stupid. Continued fever for fifteen days ; highest,  $105^{\circ}$  F. Tongue dry, spleen enlarged, characteristic eruption, diarrhœa with green stools.

CASE V.—Age, twenty-seven months ; recovery. This patient was the first of six individuals in the same family to take the disease. It had the eruption, dry tongue, hebetude, doubtful spleen, constipation and diarrhœa alternating ; anæmic and emaciated.

CASE VI.—Age, thirty months ; recovery. Seven members of the family had the disease at the same time, one fatally. Notes in this case not accurately kept. The cases of the three children appeared to be mild.

CASE VII.—Age, three years. Child had scarlet fever three weeks before. Typhoid symptoms mild, but characteristic.

The fact that but *four* cases out of 406 were in children under two years shows that under that age there is marked insusceptibility.

#### *Modified Milk in Infant Feeding.*

LUTHER S. HARVEY (*Physician and Surgeon*, December, 1895) urges the use of modified milk, because it is now possible to produce a mixture artificially which shall agree in chemical composition with the breast milk.

The question of the nutritive value of boiled and sterilized milk has been much discussed. Many hold that sterilization of milk does not injure its nutritive qualities. Koplik's recent experiments in this direction seem to show that the estimation of the total nitrogen excreted is of little value in determining the question. Nature should be the guide in this as in other questions of infant feeding.

The intricate details of the process by which cow's milk is made to imitate the breast milk can only properly be carried out in a laboratory fitted for the purpose. By the establishment of milk laboratories it is possible for physicians to prescribe a proper food and have it prepared with the same care that would be given to a prescription. All children do not thrive on the same food. There is no set combination of percentages that will suit all cases, but it has been found by experience that percentages agreeing with the average breast milk

will give satisfactory results in the majority of cases. If it is found that the food is difficult of digestion, the percentage of albuminoids is probably too high, and by a careful reduction it may be overcome; or if the food seems to agree but the child does not appear to thrive, the percentage of proteids or fat is probably too low and must be raised to supply the infant's demands for nutrition.

The advantages claimed for this method are that the constituents more nearly approach those of human milk, in that they have neither been changed by the presence of bacteria nor by being subjected to a high temperature. The question of the proper feeding of infants leaves many problems to be solved and, though much is yet to be learned, it is our duty to act upon all the knowledge we possess and spare no pains to imitate Nature as closely as possible.

#### GREAT BRITAIN.

##### *Mortality from Empyema in Childhood.*

L. W. MARSHALL (*Lancet*, December 21, 1895) reports forty-five cases operated upon since May, 1879, with seven deaths. All were treated by free incision with the exception of two, where, owing to the grave condition of the child and the extent of the effusion, it was deemed wiser to relieve the chest by a limited respiration some hours before proceeding to free incision. Seven of the cases operated upon were under three years of age, and of these two died, one child being one year old and the second being a year and nine months. The method of treatment may be summarized as follows: (1) Free incision; (2) a single tube in infants, but a double-barreled tube in all above the third year; (3) the complete emptying of the chest of fluid for the first week twice daily by turning the child on his side as one would empty a barrel, this being assisted by an effort of coughing when the child is old enough to understand what is needed; (4) the early removal of the tube—*i. e.*, at the end of the first week; and (5) allowing the patient to sit up and move about as soon after the first week as possible, thus helping the expansion of the lung. The author has never found it necessary to remove a portion of a rib in an acute case. The points of interest in the fatal cases were: (1) With one exception they were those of effusion on the *left* side; (2) in all there was a long history of illness before admission, varying from six weeks to three months; (3) in one gangrene of the lung was believed to exist, but this could not be proved post mortem; (4) of the two deaths occurring in children under two years of age, one was

the direct sequence of chicken-pox, and both children were rachitic to a degree; and (5) one case suffered from thrombosis of the left iliac vein six days after operation, and died on the eighth day.

The deductions that are drawn are as follows: (1) That free incision when done early is very successful; (2) that the removal of a portion of a rib is never necessary in acute cases; and (3) that a fatal issue at any age is rather the result of the neglect to recognize the true nature of the case than from the operation itself.

#### FRANCE.

##### *Deformities of the Thorax and Neck In a Fetus.*

LEFOUR (*Jour. de méd. de Bordeaux*, December 15, 1895) presented to the Society for Obstetrics, Gynæcology, and Pædiatrics of Bordeaux specimens from a newly born infant exhibiting deformities of the thorax and neck. The mother had without difficulty given birth to five healthy children. The labors had been normal. She was pregnant the sixth time by another man, concerning whose health no information could be obtained. The pregnancy had been normal. When labor began the head was found elevated above the superior strait and in extension. The sagittal suture could not be reached. The right parietal prominence only could be distinguished. The pulsations of the foetal heart was strong and numbered 140. The labor was very slow. The child, when born, was apparently in a stupor, but was revived. It breathed but did not cry; weight, 2,500 grammes. Next morning the infant became cyanosed, and respiration became forced and spasmodical. There were twelve respirations per minute. It died at 11 P. M.

It presented on the right side of the neck a deep depression where the stump of the shoulder was lodged. At the post-mortem examination no splanchnic lesion was found. The left carotid region was strongly compressed; the cellular tissue surrounding the pneumogastric was infiltrated. The left half of the thorax was flattened, with this peculiarity: that the three first ribs were ankylosed and the vertebral column curved and the head inclined toward the concavity.

Could this have been caused by pressure of the nerves of the carotid region? The pulse before birth was normal—140. Thus there could have been no lesion of the pneumogastric, unless the absence of voice and difficulty of breathing was accounted for in this way. The writer thought that the deformity was caused by intra-uterine pressure upon the head, bending the neck and compressing the vas-



culo-nervous carotid bundle. When the child no longer had resource to placental nutrition, the respiratory trouble became evident.

Dr. Coyne did not believe that in this case there was a lesion of the pneumogastric. Its compression would have accelerated the respiration rather than to have diminished it.

The examination of the jugular vein shows a sanguineous coagulation, which doubtless progressed from above downward and caused death when it reached the vena cava.

The osseous deformation is a valuable contribution to the study of intra-uterine compression. It is possible that these facts may be due to intra-uterine rhachitis.

### *The Pretended Dangers of Sero-therapeutics.*

CHARLES MONGOUR (*Jour. de méd. de Bordeaux*, January 5, 1896) takes exception to the conclusions arrived at by Dr. Moizard regarding the dangers of sero-therapy. Dr. Moizard attributes the death of a child of six years to an injection of ten cubic centimetres of serum used as a preventive. The child had false membrane and a herpetic appearance of the throat, but Löffler's bacilli were not found. Later, Mr. Sevestre recorded bad results which might be attributed to sero-therapy. He, however, refused to accept the interpretation of Moizard. He considered the death of the child noted by Moizard to have been caused not by the injection of serum, but by the action of the toxins of streptococci. The complications that occurred would seem to bear out this view: such as swelling of the ganglia of the neck, arthralgia and arthritis with suppuration, polymorphous eruptions, and anuria. These symptoms are common to both streptococci and Löffler-bacilli poisoning. The author records the following case as opposed to the one reported by Moizard:

The patient was a child of six years who was suddenly attacked with headache, vomiting, and diarrhœa, with high temperature. On the trunk and limbs there appeared a scarlet eruption with a few urticarial papulæ. The elbows became painful, and finally on both tonsils, the anterior pillars, and the uvula, thick false membranes of a dirty-gray color and easily detachable appeared. There was no ganglionic enlargement. The next day cultures were taken from the membrane. The throat seemed about the same. The child showed extreme prostration. The bacteriological report showed "micrococci and short streptococci"; no evidence of diphtheria. A second culture was made. The child seemed much worse. Without waiting for the result of the bacteriological examination, an injection of twenty

cubic centimetres of serum was made. Four hours after the injection the patient improved rapidly, temperature went down, and child slept better than formerly. The day following, large pieces of membrane were vomited up, and from that time the patient made an uninterrupted recovery. The second bacteriological examination also showed no diphtheria. Some days later the mother of the child was attacked with the same symptoms; the bacteriological examination gave the same result.

In assuming that death in Moizard's case was due to the injection of serum, he assumes the most improbable of all hypotheses. The proof of this is in the symptoms presented by the patient, such as polymorphous eruptions, arthralgias, etc. These have been observed many years before the injection of serum was known, and were prominent in the case just quoted by the author and that before the injection was given.

The conclusions to be drawn from this recital are : That injections of antidiphtheritic serum are absolutely harmless, even when false membranes do not contain Löffler's bacillus; that the serum detaches the membrane containing streptococci, and should be used in all cases, even though they are known to be non-diphtheritic. The eruptions found after the injection of serum are the same as those that occur in the course of angina with streptococci or with Löffler's bacilli. In doubtful cases the physician should not wait for a bacteriological examination, but inject the serum.

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WHAT IS THE BEST METHOD OF MAKING AND OF  
CLOSING THE CÆLIOTOMY INCISION?\*

BY GEORGE M. EDEBOHLS, A. M., M. D., NEW YORK.

In presenting this short paper to the Society this evening the writer has a twofold object. The first is to elicit a comparison of views as to the preferable method of making as well as of closing the cœliotomy incision ; the second is to afford the writer an opportunity for recantation.

To begin with the recantation. A little over three years ago (November 15, 1892) the writer presented to this Society a paper entitled *The Prevention of Hernia after Incision of the Abdominal Walls*. In this paper he warmly advocated the use of the buried permanent suture, silkworm gut being the material of preference, and thought he had found in its successful use the solution of the question of how to prevent hernia after abdominal operations. To accomplish this object, primary aseptic burial of the silkworm gut was, of course, an essential, suppuration in the wound, as after the employment of any method of suture, rendering the obtainment of a cicatrix firm enough to resist intra-abdominal pressure a problematical matter. Now while, with comparatively rare exceptions, able to obtain this necessary primary union, the writer in the course of time found that the suppurative possibilities did not invariably terminate with the discharge of the patient, say three to four weeks after operation, with an aseptical-

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\* Read before the New York Obstetrical Society, February 18, 1896.

ly healed wound. In a number of cases suppurating sinuses, leading to or from a buried silkworm suture, formed three months, six months, a year, and in one case even two and a half years after primary aseptic burial of that selfsame suture. Some of the patients returned to the operator, who, let us hope always in a duly meek and apologetic spirit, removed the offending suture or sutures with resultant closure of the sinus. In some the disagreeable task fell to the lot of the house surgeon; in others still, at their far-away homes, the family physician kindly officiated at the resurrection of the buried permanent (?) suture, while he probably thought some thoughts not in the nature of benedictions upon the operator; for the removal of the buried suture of silkworm gut is often a task of difficulty and patience, especially in women with thick adipose investments. Especially troublesome did this removal prove in three or four cases of nephropexy, in which the kidney had been sutured to the deep parts of the thick lumbar portion of the abdominal parietes by buried silkworm gut. For this among other reasons the writer now uses chromicized catgut to secure the kidney in nephrorrhaphy.

Proof was thus forthcoming, in the course of time and in the shape of resurrected buried sutures, that aseptic burial and primary union did not always end the matter. The aseptically buried silkworm-gut suture did not always remain as an innocuous and encapsulated foreign body in the tissues, but in a proportion of cases—estimated in my experience at between five and ten per cent. of all sutures thus aseptically buried at the time of operation—the suture at a more or less remote period caused suppuration, and, either with or without extraneous help, found its way to the surface and was discharged.

Now even this disagreeable side effect might possibly have been endured if only ALL those patients in whom the suture remained permanently and aseptically buried could be guaranteed absolute exemption from hernia: but time and experience, alas! destroyed my illusions in this respect also. I have had two cases in which hernia, in the shape of a diastasis of the recti muscles along the whole length of the wound, followed median *cœliotomy* incisions closed by the buried suture of silkworm gut, embracing fascia, muscle, and peritonæum. In one case three out of eight buried sutures used were removed four weeks after operation; in the other case all the sutures remained aseptically buried. Now this is what happened: The tissues forming the margins of the original wound on one side, the fascia and muscle, had gradually pulled away from the embrace of the suture, the latter cutting through on one side to the median line. A hernial aperture

was thus established extending the whole length of the cicatrix, its margins being formed by retracted muscle and fascia on either side. All the loops of the buried silkworm-gut sutures were felt hanging intact in a row in the muscular and fascial border of one side of the hernial aperture. A subsequent radical herniotomy performed upon each case verified this palpatory diagnosis.

This experience is but confirmatory of that recorded by others, that in those, fortunately rare, patients in whom there is an absence of the power of firm healing of divided tissues, no method of suture and no suture material will guarantee against hernia after median cœliotomy. If the divided tissues at the end of five to six weeks have not united firmly enough to remain united without further aid than that afforded by the solidity of union, a hernia will result, any form of permanent buried suture or abdominal supporter to the contrary in any wise notwithstanding.

For two and a half years, beginning with May, 1892, and ending with December, 1894, I closed practically every wound of the abdominal parietes which I had occasion to make by means of buried silkworm-gut sutures. The occurrence of late suppuration in the wound in between five and ten per cent. of cases, together with the experience of two herniæ, in spite of the support afforded by buried permanent sutures, have led me to abandon the method entirely, except where purely fibrous tissues, as in the radical operation for umbilical hernia, for example, are to be brought together and maintained in apposition.

I have embraced this opportunity to repudiate in as public a manner as I once championed it, and before the same Society, the buried *permanent* suture. It accomplishes no more than the buried suture, which will maintain its integrity for six weeks or thereabout and then disappear by absorption, without the attached possibilities of suppuration months and years after operation. To those whom my paper of three years ago perhaps influenced to adopt the buried permanent suture I owe an apology, which is herewith humbly tendered, for whatever trouble they may have experienced on that account. As showing, however, the various degrees of the *tenax propositi* in various men, I might cite the instances of two warm personal friends, both eminent gynecologists. Both adopted the buried permanent suture after my advocacy of it. One promptly gave up its use after a few months, led by the same experience as regards suppuration against which I struggled for two and a half years; while my second friend is to-day still using the method, in spite of my personal appeals to him to cease, and claims to derive satisfaction from its employment.



Having decided to abandon the buried permanent suture for the closure of the cœliotomy incision, the writer for a while felt somewhat embarrassed for a substitute. Previous to taking up the buried permanent suture I had tried about all the various methods and suture materials in vogue at the time, and had felt that there were shortcomings inherent to each method. In fact, this very feeling of dissatisfaction with the various methods of closing the abdominal incision had led to the adoption of the buried permanent suture.

We all know that two requisites are absolutely essential to a satisfactory up-to-date closure of the cœliotomy incision. The first of these is accurate and nice approximation and coaptation of homologous structures, so that the cut edges of peritonæum, muscle, fascia, and skin on one side of the wound will each heal to the same tissues of the opposite side. The second requisite is retention of the parts in apposition until firm union has occurred—union strong enough to withstand intra-abdominal pressure without yielding. This will require, to be on the safe side, from five to six weeks; if by the end of that time the organic union of the tissues is not sufficiently strong to be self-supporting, no suture and no abdominal supporter, no device of any kind, will prevent diastasis in the line of union and the formation of a hernial aperture.

To retain the parts in apposition for from five to six weeks, two principal methods can be employed: Through-and-through sutures, embracing all the tissues and tied upon the skin, to be removed in from five to six weeks; or buried animal sutures, which will disappear by absorption at the end of that time. Or a combination of these two principles may be practiced. The through-and-through suture has two principal disadvantages: First, it is difficult, if not impracticable, by means of it alone to secure *accurate* coaptation of homologous structures throughout the entire depth and extent of the wound. Secondly, we generally discharge our patients three to four weeks after a cœliotomy, and it is desirable to have them leave with wounds definitely healed, and requiring no further attention in the way of dressings and removal of sutures.

The buried animal suture, so prepared as to maintain its integrity for about six weeks and then to disappear by absorption, is the desideratum. The writer, after much experimentation, has succeeded in learning how to chromicize catgut so that it will satisfactorily meet these requirements. Kangaroo tendon is the chief rival of catgut as a buried animal suture. Some two years ago I employed kangaroo tendon systematically for a time, using it both for buried and for

superficial suturing. My supply was obtained from Dr. Marcy, of Boston, the enthusiastic advocate of the kangaroo tendon for buried sutures. As compared with catgut, I found kangaroo tendon to possess these disadvantages: 1. Its very high price. 2. The uneven thickness, not only of different strands, but of the same strand at various parts of its length. 3. Limitations of use imposed by length of strands. Kangaroo tendon can not be obtained of sufficient length, say a metre, for a fairly long running buried suture. The great advantage claimed for the kangaroo tendon is its longer resistance to absorption. This is, however, only a relative advantage, which disappears entirely after one has learned how to chromicize catgut so that it will last a desired length of time. I have used only the non-chromicized kangaroo tendon, and have made comparative tests of absorption by using it alongside of non-chromicized catgut, *of the same thickness*, in the same wound of the same patient. The result showed an increased resistance to absorption of not more than twenty-five per cent. in favor of the kangaroo tendon; that is, if a given thickness of catgut was absorbed in say eight days, kangaroo tendon of the same thickness would disappear in ten or eleven. To make kangaroo tendon last sufficiently long for our purposes, say about six weeks, it must be chromicized, and if we must chromicize, let us chromicize the preferable suture material of the two, the catgut.

I have use in my work for the two smallest sizes only (Nos. 0 and 00) of chromicized catgut, which I invariably chromicize and sterilize personally. As the proper preparation of the suture material is so important a factor in the method of closing the cœliotomy incision which I now employ and here advocate, I will first describe the process of chromicizing and sterilizing catgut as I practice it.

Buy the raw material, catgut Nos. 0 and 00, in coils five metres long, of an importer of jewelers' supplies. Avoid the fine, white, smooth, alluring catgut sold for surgical use. The smoothness and finish are obtained at the expense of strength of material, the sandpapering process thinning and weakening the catgut in spots, and the chain is no stronger than its weakest link. Cut and remove the small pieces of catgut tied around each coil to keep it in shape.

Place the catgut in ether to extract fat. It may be left in the ether for any length of time—days and weeks—until convenient to proceed with the further steps of preparation.

Remove the catgut from the ether, and allow it to dry thoroughly.

To chromicize to the desired degree, place the catgut for thirty hours in the following solution: Bichromate of potash, 1.5 grammes;

carbolic acid, 10 grammes; glycerin, 10 grammes; water, 480 grammes. Dissolve the bichromate of potash in the water, then add the carbolic acid and glycerin.

Before placing the coils in the solution arrange them upon a central core or cylinder, of nearly the diameter of the interior of the coil, to prevent entangling and snarling of the catgut as it swells and becomes twisted in the solution.

After thirty hours remove the catgut *with and upon the core* from the bichromate-of-potash solution, and immediately wind it upon a frame, stretching it pretty taut. I use a wooden frame, resembling a curtain-stretching frame in miniature, one metre in length, which is the length I find it convenient to have catgut sutures. The catgut is stretched upon the frame for the twofold purpose of convenience in drying, and to prevent the curling and kinking which obtain when catgut has been soaked in water and dried without stretching.

The drying must be done at a temperature not exceeding 40° to 45° C. If higher temperatures are risked, the moist catgut may gelatinize; it then becomes so brittle as to be absolutely worthless. The drying should be thorough, and the process should extend over a space of time of several days. If the least moisture remains in the interior of the catgut, it will surely gelatinize and render brittle and worthless the catgut when raised to high temperatures in the process of sterilization to follow. This thorough drying after chromicizing is, I repeat, *absolutely essential* to obtain a useful product.

In chromicizing catgut, bear in mind that nothing is easier than to overchromicize so as to make it practically non-absorbable. The difficulty lies in chromicizing it to last just the required time, and the method just detailed is the result of much and somewhat costly experimentation. Catgut No. 0, chromicized as above, will resist absorption for about six weeks.

The chromicized catgut is now ready for the process of sterilization. Various methods of sterilization are at our disposal, of which the writer has tried only two: dry sterilization at a temperature up to 280° F., and sterilization by boiling in absolute alcohol under pressure. Of the two he prefers the latter, as having yielded him stronger and more satisfactory material, without thereby meaning to impugn the value of dry or of other forms of moist sterilization.

After the chromicized catgut is *thoroughly* dry it is cut into pieces one metre in length. These pieces are rolled on a finger into small coils which need not be tied, and which are packed nicely into one-ounce glycerin jelly jars, about twenty coils to the jar. Absolute

alcohol (Squibb's 99.8 per cent.) is poured over the catgut in each jar until full, a properly fitting rubber washer is placed inside the metal cap, and the latter is screwed down fluid-tight. The glycerin jelly jars are then placed standing in a large anatomical jar\* containing from two to four ounces of absolute alcohol.

Two, or even three layers of the glycerin jelly jars may be placed on top of each other in the anatomical jar. The cover of the latter is now also screwed down air- and fluid-tight, and the whole is ready for the sterilizer. I have always used an Arnold sterilizer, in which the large anatomical jar, filled and sealed as above, is placed, and the sterilizer started. The boiling point of alcohol is  $78^{\circ}$  C. The atmosphere of steam at  $100^{\circ}$  C. and the firm closure of the small jars, as well as of the large anatomical jar, secures the boiling of the catgut in absolute alcohol under pressure. The arrangement probably also diminishes the danger of explosion and of ignition of the alcohol vapors. The catgut is boiled in absolute alcohol under pressure for five hours, when the cover of the Arnold sterilizer is removed, and the anatomical jar with its contents allowed to cool gradually. The alcohol, of course, will keep on boiling until the temperature falls below  $78^{\circ}$  C. Readjustment of some of the rubber washers and filling some of the jars with absolute alcohol, to replace that lost in the process, and your catgut is ready for use.

Chromicized catgut prepared in this way does not decompose or change in absolute alcohol; the combination of the chromic acid with the catgut is an organic one, and is not affected by the alcohol. Catgut thus chromicized and sterilized remains strong, sterile, and unimpaired in quality for years.

I have been thus prolix in describing the details of the processes of chromicizing and of sterilizing catgut, because I found that only by faithfully adhering to them have I been able to obtain the satisfactory suture material which I now possess. Even some of those engaged professionally and in a mercantile way in the preparation and sterilization of suture material have admitted to me their inability to produce a satisfactory sterilized chromicized catgut.

Each lot of catgut thus prepared is first subjected to bacteriological test, and, if found perfectly sterile, as it invariably has been, is kept under lock and key to prevent possible tampering with. At an

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\* The one-ounce glycerin jelly jars and the anatomical jar here referred to are those manufactured and sold under that name by Whitall, Tatum & Co., of Philadelphia and New York.

operation the quantity of catgut estimated as probably being wanted is taken out of the jars. No catgut, however, after being once removed from the jars is again put back.

The clinical test has proved almost equally satisfactory. For instance, since my return from vacation in September last, a period of four months and a half, I have used absolutely nothing but catgut for ligatures and as buried sutures in all of my abdominal work, both hospital and private, and have not had a death from any cause, and no deep infection. Two cutaneous stitch abscesses following shortening of the round ligaments, both occurring in the same one of the two hospitals with which I am connected, are the only untoward occurrences I have had. They were both probably ascribable to some little slip in antisepsis and not to the suture material.

I will now proceed to describe the method, which I have practiced for more than a year past, of making and of closing the cœliotomy incision. In the first place, I have given up trying to make the cœliotomy incision exactly in the median line, but, with a number of other operators, prefer to make it through one of the recti muscles, a little to one side of the median line. The purpose is to get bare muscle surfaces on either side of the wound which, when brought together by suture, will help by the strength of their union to make the cicatrix just that much stronger. If I have perchance hit the median line exactly, not exposing any muscle, I deliberately, before closing the wound, split the sheaths of the recti on both sides by incising them along the entire length of the wound (Fig. 1). The incisions are made along the inner edges of either muscle, and extend somewhat into the substance of the muscles themselves, so that when completed we have presenting toward each other at the median line two large muscular surfaces each lined anteriorly and posteriorly by cut fascia. Instead of a single fascial margin on either side to approximate and depend upon for union, we have, after this flap-splitting process, two fascial margins plus a large muscular surface on either side, with greatly increased strength of the resultant cicatrix. The rule, then, in making the cœliotomy incision, is either to incise through one of the recti, or, if we have failed in this, then to open the sheaths of the recti on either side so as to expose large muscular surfaces and two fascial edges on either side for union.

The edges of the wound are thus prepared for union to the greatest advantage with a view to strength of the resultant cicatrix. We need not concern ourselves for the present with superficial fat and skin; in their union does not lie strength. The problem is how to



approximate in the best manner the muscular and fascial layers of the wound so as to secure accurate coaptation of homologous parts, and how best to retain them in approximation long enough for union sufficiently firm for all purposes to be consummated.

The writer's preference for the buried suture of forty-day catgut having been already sufficiently set forth, it merely remains to add that he is convinced that the running suture is to be preferred to the interrupted suture, and for the following reasons: By means of the running suture it is possible to bring together homologous structures more accurately and, I believe, more quickly than by interrupted sutures. In the next place, the number of buried knots is decreased—indeed, is generally limited to one knot. This is a somewhat important matter, as no doubt the knot is the most undesirable thing about the buried suture, the bulk and local aggregation of suture material rendering knots foreign bodies, the presence of which in great number the tissues resent by an attempt at extrusion.

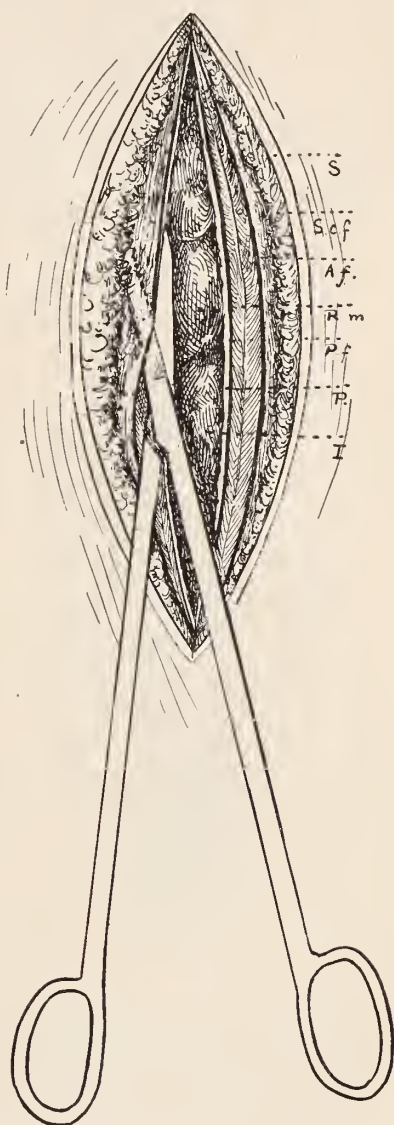


FIG. 1.—Fascial sheath of the rectus muscle divided, and muscle itself superficially incised (flap-splitting) along the whole length of wound, on one side. On opposite side, scissors in act of slitting sheath of muscle. *S.*, skin; *S.c.f.*, subcutaneous fat; *A.f.*, anterior fascial edge; *R.m.*, rectus muscle; *P.f.*, posterior fascial edge; *P.*, peritoneum; *I.*, intestines.

One of the great objections I advanced, when reading the paper quoted in the beginning of this article, against the use of buried catgut for closing incisions of the abdominal wall was the unreliability and instability of the buried catgut knot. I have since learned how to tie catgut so that it will remain tied, even under tension, when buried in the tissues. I would here express my obligations to Dr. Horace T. Hanks, from whom I learned this useful bit of knowledge.

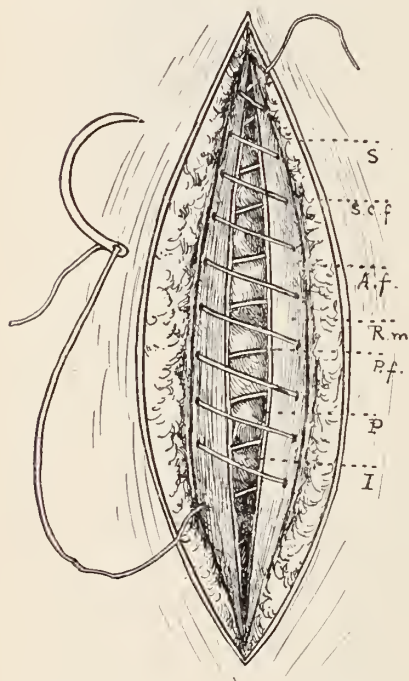


FIG. 2.—Showing deep tier of buried running forty-day catgut suture, nearly completed, but not drawn tight. The suture embraces peritonæum, the posterior edge of the divided fascia, and muscle.

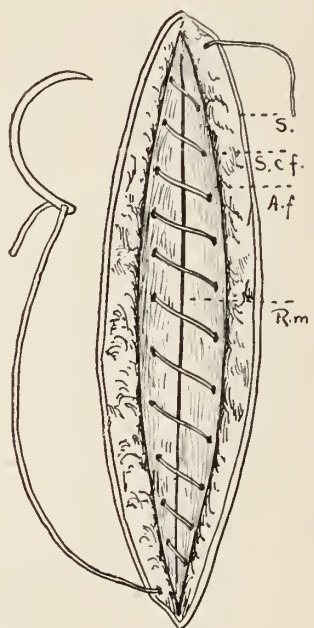


FIG. 3.—Deep suture tier completed, coaptating peritonæum, posterior fascial edge and muscle of one side to their homologues of the opposite side. Both free ends of the suture are seen emerging from the surface of the anterior layer of fascia, on opposite sides, one at the upper, the other at the lower angle of the wound.

A single turn is first made and drawn tight; this is prevented from slipping by the assistant grasping it with forceps until the operator completes the second turn by a friction or double knot, made by interlacing the two ends twice before drawing taut (see Fig. 4). In other words, the first half of the knot is tied as a single and the sec-

ond half as a double or friction knot, exactly reversing the more common order. As catgut is somewhat elastic, it should be drawn *very* tight in knotting.

In uniting the cœliotomy incision, made as above described, by the buried running suture of chronicized forty-day catgut No. 0, the following method is employed :

Beginning, let us say, on the left side of the upper end of the wound, at from one half to one centimetre from the fascial margin, the needle, at the first thrust, is carried through fascia, muscle, and peritonæum (Fig. 2). Emerging on the opposite (right) side, peritonæum and muscle only are embraced in the suture, the fascia not being included. The suture is then continued as a running suture, embracing peritonæum and muscle only on both sides of the wound until the lower end of the wound is reached. The last loop embraces muscle and peritonæum only on the left side, while on the right it is carried through peritonæum, muscle, and fascia (Fig. 3). The deep suture is now completed, and the catgut is carried back as a running suture, whipping together the fascial edges until the upper end of the incision is reached, where it finally emerges from the fascia on the right side. The two ends of the suture are tied together over-the-fascia in the manner already described, constituting the only buried knot. Whipping the edges of the skin together by small over-and-over stitches, or by the subcutaneous suture of ordinary catgut, completes the closure. The fat is not sutured ; it falls into juxtaposition and takes care of itself. After pressing out any air that may have been imprisoned in the fatty layer while suturing the skin, the dressings are applied.

One catgut suture, a metre in length, and consequently one knot, will suffice to close an incision five inches or less in length. Should the incision exceed five inches in length it is closed in two sections, calling, of course, for two buried knots.

If the recti muscles have been laid bare by slitting their sheaths



FIG. 4.—Fascial wound closed by superficial tier of buried running suture. Skin and fat are not represented in this cut. The knot is represented as loosely made to illustrate proper manner of tying buried catgut, a single turn in the first half, and a double turn in the second half of the knot.

along the inner border, so as to make two fascial borders on each side, one anterior and one posterior to the muscle, then the posterior layer of fascia is included with the muscle and peritonæum in the deep tier of the buried running suture.

In case it be desirable or necessary to perform ventral fixation of the uterus in closing the cœliotomy incision, the spot is first ascertained where the fundus uteri fits comfortably against the abdominal wall. When that point of the incision is reached by the deep running suture uniting muscle and peritonæum, three loops of the suture, in addition to joining these tissues, are made to secure the uterus by being carried into and across the fundus. These three sutures, or rather three loops of the same suture, are arranged in such a way that the middle one pierces the uterus just between the points of origin of the tubes, the upper one being carried through the fundus a little behind and the lower one a little in front of this point.

The method of closing the cœliotomy incision by the running buried suture of forty-day catgut, applied in the manner advocated, is believed to possess these advantages :

1. Accurate coaptation of homologous structures.
2. The use of minimal quantities of buried suture.
3. Avoidance of all superfluous buried knots.
4. The suture is nowhere interposed between two raw surfaces which should unite.
5. The presence of the suture only so long as it is actually needed.
6. Removal of sutures becomes unnecessary.

I have confined my remarks to the median cœliotomy incision as being the one most frequently practiced by gynæcologists. The principles enunciated are, however, applicable with equal advantage to wounds made in other parts of the abdominal wall.

The scars obtained by this method of making and of closing the cœliotomy incision are characterized by palpable thickness and solidity, not only on the discharge of the patient from hospital, but months afterward. After employing it exclusively for the past fourteen months I have yet to learn of a case of hernia following its use. I allow my patients to get up in from two to three weeks after a cœliotomy, according to the nature of the particular case.

The method of making and of closing the cœliotomy incision above advocated is novel, as far as the writer's knowledge goes, only in the practice of invariably slitting the sheaths of the recti muscles along their inner edges and along the whole length of the wound, whenever the incision of the abdominal wall has come to fall between those

muscles. That this is by no means an unimportant matter becomes apparent when we reflect that, in place of a single fascial margin on either side, we have, after slitting the sheaths of the recti and slightly splitting the muscles themselves, two fascial margins and a broad muscular surface on either side available for union with their homologues of the opposite side. Months after operation, when wound exudates have entirely disappeared, the finger run down the median line of the abdomen from sternum to pubis will gain the distinct impression that the cicatrix constitutes the thickest, firmest, and probably strongest part of the median line.

The systematic and precise method of applying the buried running catgut suture, as detailed above, is also believed to possess advantages.

59 WEST FORTY-NINTH STREET.

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## PRESENTATION OF POST-OPERATIVE SEQUELÆ AND HOW THEY FAVOR MORTALITY.\*

BY JOSEPH PRICE, M. D., PHILADELPHIA.

It would be difficult to settle the relative merits of some of our gynæcological operations by statistics; but few operators give every patient the one remaining chance for her life, refusing nothing. A good number of operators select their patients and operations most carefully, excluding some on the ground that their general condition, heart, kidneys, or lungs are faulty, and that they will not bear an operation; second, that the trouble is malignant or too adherent or complicated by visceral attachments. These are the cases that they do not even attempt. In the next group they explore by abdominal or vaginal incisions or punctures by trocar or aspirator, and again declare them inoperable—only proper subjects for palliative methods of treatment. It is to the last group of cases I desire to particularly call your attention.

We all know how common it is for these patients to drift from one operator to another. About all these patients continue to suffer and demand radical measures at the hands of some one else. The operator, willing and capable of completing these operations, finds them

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\* Read before the Philadelphia Obstetrical Society, March 5, 1896.



thrice more complicated than the same class of troubles before incision or puncture—the patients exhausted from prolonged drainage, septic from imperfect drainage, renal and hepatic disturbance due to the prolonged and neglected suppuration, shock more prominent and unavoidable, and due chiefly to severing anchored cicatrices at the seat of incision or puncture.

Aside from shock and hæmorrhage, the risks of contamination of viscera and wound are increased. Again, viscera lesions are multiplied, their repair much more complicated and uncertain. Completed primary work by the suprapubic incision gives the lowest mortality, the most speedy recoveries, and the fewest post-operative complications or sequelæ. Sinuses at any point above or below, due to either ignorance, neglect, or delay, are both distressing to patient and physicians interested; two or more surgical efforts are necessary to cure or save. With this knowledge, why should we timidly and deliberately favor such complications in healthy, favorable subjects for complete work by timid operations? Opening the abdomen, stitching abscess or sacs, to incision or packing around about with gauze, to incise later for drainage and irrigation! The enucleation of such abscess and sacs is easy, safe, and sure, and if viscera is involved, careful freeing and repairing, if necessary, results in what we most desire—a cure.

It would seem by some recent papers and discussions that a reversion to ancient methods of treatment had taken root at some points. Present efforts at the choice and selection of the so-called proper cases is to be condemned. It results in the neglect of many patients, and increases the mortality by favoring late operations in the hands of men willing and capable and possessing a decent surgical conscience. The doing of refused, incomplete, and abandoned operations is a trying discipline to one familiar with pelvic and abdominal disease in its early natural history.

Years ago the operations for pelvic disease were much easier—less complicated than at present. In a large group of operations in my own hands done very recently, about everything adjacent to the pelvic inlet from appendix to sigmoid, appendix, cæcum, ileum, sigmoid, and omentum had been strongly anchored to the underlying specimens. The last four operations, done in the last four days, were full of positive complications, contraindicating vaginal methods of treatment. Again, while the fixation of large pus tubes and ovarian abscess are very great, they are just the cases to demonstrate the importance of complete methods by the suprapubic incision. All of them had been tinkered with for many years. It was not necessary “to

back down" or abandon any of them for the modern incomplete methods, and I unhesitatingly urge the importance of a more careful study of the pathology and adhesions of tubal and ovarian disease, the diagnosis and the simplicity of the completed suprapubic methods of removal. I do this that the general practitioner may not be led astray and criticise us in our general disagreement in methods and results.

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## SOME COMPLICATIONS AND SEQUELÆ OF GYNÆCOLOGICAL OPERATIONS.\*

BY W. E. PARKE, M. D., PHILADELPHIA.

It is my purpose in this paper to enumerate and briefly describe some of the more important and frequent complications and sequelæ of gynæcological operations, the complications referring to the condition of the patient and not to the difficulties of the operation.

Among the sequelæ, sepsis and peritonitis easily occupy the first place in importance. The deaths following intra-abdominal operations are in the great majority of cases due to these causes. From the clinical standpoint the symptoms of sepsis vary according to the character, intensity, and virulence of the infecting agent. There are cases in which death ensues in the course of one or two days, in which there are no inflammatory lesions, which are probably due to the absorption of toxins to such a degree as to overwhelm the vital nerve centers before serious inflammatory or infective lesions have time to develop. In other words, the cause of death is a profound toxæmia. At times these cases may present the clinical aspect of internal hæmorrhage. It is probable also that some of the cases that are presumed to die of shock after this period are due to acute sepsis. If the toxæmia is not so intense as to cause early death, the general symptoms will be: 1. Fever. Ordinarily this does not begin until twenty-four hours after the operation, because the microbes have not earlier multiplied sufficiently to furnish toxins for absorption. The fever may rise to  $104^{\circ}$  or higher, and is often preceded by a chill. The rise of temperature which follows immediately any operative procedure has been called aseptic fever (Beck, *Manual of Surgical Asepsis*),

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\* Read before the Philadelphia Obstetrical Society, March 5, 1896.

and is said to be due to the absorption of fibrin ferment. It rarely exceeds  $102.5^{\circ}$ , and declines constantly after the first day. 2. The *pulse* probably gives the earliest indication of sepsis. A pulse-rate of 120 or more a minute, whether associated with a high or low temperature, is a suspicious symptom, and should put one on the lookout for further signs of this condition. 3. The *skin* becomes relaxed, moist, and, in severe cases, bathed in profuse perspiration. 4. The *nerve tone* is much below par. There may be weakness, restlessness, anxiety, sleeplessness, headache, and delirium. These symptoms may be due either to the absorption of toxins or the invasion of septic organisms themselves, the former condition being called *sapræmia* and the later *septicæmia*. The differential diagnosis of these conditions depends upon the suddenness of the onset of the symptoms, the course of the disease, and the result of treatment. The more rapid and persistent rise in pulse and temperature indicates *sapræmia*, the slower and remittent type *septicæmia*. The removal of the nidus of infection is followed at once by the amelioration of the *sapræmic* symptoms. The *septicæmic* symptoms, on the other hand, improve much less promptly, if at all, under these circumstances.

If the symptoms above detailed be intensified, and the condition of multiple abscesses be added, we will have *pyæmia*. This malady is due to the entrance into the blood channels of pus-producing organisms, which are carried from the seat of infection to distant parts of the body by means of emboli. At the point of lodgment the organisms multiply and cause localized pus collections. The local symptoms will be determined by the organ involved and the seat of the abscess. The general symptoms, however, are practically the same, the salient ones being severe chills, high fever, and drenching sweats.

*Peritonitis* following operative procedures is due to infection, and the symptoms are oftentimes so involved with those of sepsis as to give rise to confusion as to which is the most important condition. Like sepsis, the symptoms do not usually show themselves until twenty-four hours after operation, and they may be so severe as to cause death within one or two days after the onset of the symptoms. The symptoms of acute general peritonitis are very characteristic, but in the post-operative form of the disease, at least, differ in some respects from those given in the medical text-books. The *pulse* becomes frequent, small, compressible; the more advanced the disease, the more compressible is the pulse. I have never seen the so-called characteristic hard pulse of peritonitis after operations. In one instance only

was there any approach to it. *Vomiting* is an early, prominent, and persistent feature of the disease. It is excited by the ingestion of any article whatever, and occurs also spontaneously. The contents of the stomach, of course, are first ejected, and later mucus and bile, and still later large quantities of a dirty brown fluid, are regurgitated rather than vomited. *Tympany*, I believe, is always present, and keeps pace with the area of the inflammation. In some cases, however, distention of the abdominal wall is not very great, but there is always even in these cases a marked *tensity of the abdominal muscles*. The symptoms of *pain* and *tenderness* vary greatly in different cases. They are by no means always present, although assigned a very important place in text-books. I have recently seen a case which terminated fatally where there was excessive distention but no pain, and little or no tenderness. Pain, when present, may be persistent or paroxysmal in character. In consequence of pain and tenderness the patient avoids all movement, and assumes a somewhat *characteristic attitude*. The shoulders and chest are inclined forward and the knees drawn up so as to relax the abdominal muscles. The breathing assumes the thoracic type and becomes more and more shallow as the chest cavity is encroached upon by the over-distended intestine. The *facial expression* in this affection is a more important symptom than in any acute disease with which I am familiar. At first one of anxiety, it rapidly changes, as the symptoms develop, into the so-called Hippocratic facies—*i. e.*, sunken eyes, pinched nose, cold ears, and a dry, harsh, lead-colored skin. *Temperature* in peritonitis is a very variable symptom. The beginning of the disease may be characterized by chilly sensations. I do not recall a distinct rigor. It rises to a moderate degree only. It may vibrate between  $100^{\circ}$  and  $102^{\circ}$  for a few days, and then rapidly shoot up to  $105^{\circ}$  to  $108^{\circ}$  just before death occurs, as in four cases reported by Cullen in *Johns Hopkins Hospital Reports*, vol. iv, Nos. 7 and 8. Or it may fall a few hours before death, as is seen in some Kensington Hospital charts which I have examined. Those cases which have a rapid, feeble pulse and low temperature seem to be the most hopelessly ill. The *tongue* becomes dry and fissured, and usually dark in the middle line. The *bowels* are constipated, and in their paralyzed condition do not even expel flatus. There are certain other symptoms dependent on these conditions, such as alteration in or obliteration of the splenic and hepatic dullness and elevation of the apex beat, which occur chiefly when the disease is well advanced and are thus of secondary importance. *Sleeplessness* and *anxiety* are marked nervous conditions. The mind is usu-

ally clear till the end is near. Tympany; free, persistent vomiting; a small, rapid pulse, and anxious expression, are the important, although not characteristic, symptoms in the early diagnosis of peritonitis. Obstruction of the bowel presents a similar group of symptoms. Acute spreading peritonitis is believed by the great majority of surgeons to terminate invariably fatally in spite of treatment. Recoveries have been reported. This probably depends on the nature of the infection.

The chief symptoms of *obstruction of the bowel* are abdominal pain, constipation, vomiting, and collapse. The consideration of this condition frequently obtrudes itself upon the mind of the abdominal surgeon, and is the source of no little anxiety. Are the symptoms due to strangulation of the gut, to volvulus, to sepsis, and peritonitis? Have adhesions formed a pouch or arch through which a loop of intestine has slipped? It is probable that most of these cases presenting obstructive symptoms a few days after infection are due to septic peritonitis. I have assisted at an operation upon one such case which was, however, puerperal in origin. A distinct mass was clearly outlined in the right iliac region, even after the patient was anæsthetized, and a cœliotomy disclosed absolutely nothing but a localized distention of the bowel to account for it. A probable instance of *volvulus* was narrated to me by a physician in whose hands it occurred. After a section the patient complained from the moment of return to consciousness of a pain in the right lumbar region. This grew constantly in intensity. Purgatives were begun early. In spite of a great number of doses and repeated purgative enemas, both low and high, no evacuation was secured. During the third day the dorsal posture became so unendurable that the patient was rolled over. Suddenly there occurred a distinct sound in the painful region, followed by instant relief and free expulsion of flatus and fæces.

Phlebitis occurs about two to three weeks after the operation, and is characterized by a slight elevation of temperature (at first about  $101^{\circ}$ , and later varying between  $99^{\circ}$  and  $100^{\circ}$ ), a sense of weight in the affected limb, pain, tenderness, œdema, and a dusky color along the line of the vessel, commencing in the pelvis and groin, and extending toward the periphery. I have not witnessed this affection in any other region than that of the internal or long saphenous vein, and always on the left side if unilateral, and beginning on the left side if bilateral. It usually runs an acute course of about two to three weeks, and subsides without further manifestations. Some œdema may be left after the acute symptoms have passed off.

A small percentage of cases of abdominal operations is followed



by a *localized infection* of the seat of operation. The course of the affection is somewhat as follows: After three or four days the patient will not do as well as she ought to do if no complications were going to present themselves. The patient will be somewhat restless, and complain of pain in the affected area. The usual purge following the operation will not entirely relieve the bloated bowel. Examination will reveal the distention of the bowel, some tenderness, externally and internally, a thickening or mass of doughy consistence. A slight elevation of pulse and temperature attends this condition. From this point the affection may pursue one or the other of two courses: either the temperature may vibrate between  $99^{\circ}$  and  $100^{\circ}$  for several days, and gradually subside to normal, while the mass grows less and less, and finally disappears after some weeks, or the general condition will not improve by treatment, and, after a short time—three to four days—the temperature will suddenly rise, announcing pus. An examination of the incision will show a dusky and swollen point, which, if not already opened, will, upon separation of the lips, show a purulent or bloody discharge. These cases, when they occur, are generally along the track of the drainage-tube. Through this track the infected ligature may come out at an early date, or the wound may heal up superficially and break out again repeatedly until the ligature comes out. I have known a ligature to come out as late as three years after it was introduced, and then the fistulous tract to heal up and give no further trouble. Occasionally the fistulous tract will communicate with the bowel. This may occur where the gut wall has been infiltrated with pus, or where the separation of adhesions has been at the expense of the bowel tissue, or where it is in any way diseased. Improperly managed drainage-tubes have been charged with this complication at times. The communication arises within three or four days after operation, and is characterized by the peculiar fæcal odor and discoloration of the drainage. It usually heals up in three to five weeks, but occasionally it will remain open for months.

The question of *thrombosis of the heart* and *embolism of the pulmonary artery* is one of clinical interest. The symptoms are those of obstructed circulation—namely, small, weak pulse, dyspnœa, and cyanosis. A slow blood current is an important predisposing cause of thrombosis, and is surely found where the heart beats very rapidly and only incompletely empties its cavities with each contraction. Physical signs are of importance but are not characteristic. There may be no cardiac impulse. The sounds are faintly heard. In two

reported cases (Gemmell, London *Lancet*, 1891, and Biggs, *N. Y. Med. Record*, 1892) there were no murmurs. In one, however, a peculiar flapping sound was audible at times. Flint states that a tricuspid systolic sound may be heard, which had not existed previously. It will thus be seen that there is no characteristic murmur pointing to this condition. Other symptoms referable to a feeble circulation are œdema of the extremities, dilatation of the pupils, headache, delirium, coma. When urgent dyspnœa not explicable by physical signs, attended with cold extremities and weakened pulse, occurs suddenly, we may suppose an embolus has lodged in a branch of the pulmonary artery. In one reported case there was little cough and a difficult expectoration of a tenacious mucus of dark currant-jelly color. When, therefore, a patient has had for a long time a rapid, feeble pulse, and dyspnœa and cyanosis develop suddenly, we may be justified in believing that thrombosis and embolism have occurred. These cases must almost invariably terminate in death. Flint, however, states that the history of some cases appears to show recovery, but there is always room for doubt in these cases respecting the diagnosis.

The lung complications which may follow an operation are those which may be due to the administration of an anæsthetic and those due to the operation itself, and are *œdema of the lungs*, *bronchitis*, *broncho-pneumonia*, *lobar pneumonia*, and *septic pneumonia*. One condition which strongly predisposes to ether complications is a present or recent bronchitis. In such a case the bronchi almost surely fill up with a frothy mucous secretion during the narcosis, which interferes with proper oxygenation of the blood and thus gives rise to cyanosis. As the patient gradually emerges from the narcosis, the respirations are accelerated, and there is cough attended by a frothy or mucoid expectoration. This may subside in a day or two and give no further trouble, or the breathing may become more labored, the cough remain troublesome and the expectoration more muco-purulent in character, the temperature rise to a moderate degree— $102^{\circ}$  to  $103^{\circ}$ —and the symptoms continue over a week. The physical signs in such a condition will show a broncho-pneumonia. In another instance the patient will progress in an entirely satisfactory manner for one or two or more days, and then be suddenly seized with a chill, and all the characteristic signs of a lobar pneumonia will follow. These symptoms are so urgent and the condition so apparent as to be practically never mistaken. It is questionable whether this form of pneumonia should be charged to the administration of ether or the operation. If it be due to a specific organism, it is possible that the germ may find a

favorable soil by reason of the reduced vitality of the subject. Septic pneumonia may follow a septic operation and be a part of the general septic process. The physical signs are not distinctive, and the disease is to be diagnosticated by the presence of dyspnœa, cough, expectoration, and often pleuritic pain in connection with general septic infection of other organs of the body.

The symptoms referable to the urinary organs following gynæcological operations are both frequent and important. They are non-septic or septic in origin.

1. *Non-septic Affections.*—It is customary to catheterize patients for a certain period after operations on the genital organs. One of the most constant symptoms complained of is more or less *pain* on passing water. This is no doubt due to two causes—(1) traumatism to the urethra during the operative procedure and the subsequent frequent passing of the catheter, (2) the highly concentrated urine which has to pass over this surface. This symptom may be trifling in importance and pass off in two or three days, or after several days the symptom of pain and burning urine may grow more and more severe and be attended with a desire to pass water frequently. Examination of the urine will show acidity, with some mucus and leucocytes, but not a large quantity of mucus, epithelium, and leucocytes. The condition disappears in four to seven days under treatment. *Retention* is not infrequently associated with this condition. This is no doubt often due to lack of innervation or of will power. The patient will feel that she can not urinate while in the recumbent posture, *on account* of the discomfort of the bedpan, *or on account* of the pain itself. *Renal insufficiency* and *suppression* may follow the anæsthesia, and are often grave symptoms pointing to kidney disease. There is, however, uniformly, a very much reduced quantity of urine passed during the first forty-eight or seventy-two hours following operation, owing to the previous purgation and the lesser ingestion of fluids. The character of the urine under these circumstances will determine largely the gravity of the condition. If it be found quite free from albumin and casts, much is to be expected from treatment. If, on the other hand, it is highly albuminous and loaded with granular and epithelial casts, the prognosis is bad, though not absolutely so. There is no doubt that this condition arises not only in those patients operated on who have already a well-recognized kidney disease, but also in those who have a more or less advanced arterial degeneration, whose urine previous to the operation does not show marked changes.

2. *Septic Diseases.*—An infecting agent may invade the urinary

passages and set up inflammation along the whole course, thus giving rise to *urethritis*, *cystitis*, *ureteritis*, *pyclitis*, *pyclonephritis*, and *acute suppurative nephritis*. *Urethritis* in the female is characterized by scalding urine, and, considered apart from the extension of the disease into the bladder, is not of great importance. The symptoms referable to *cystitis* are frequent and painful passage of a small quantity of water (the whole quantity of urine in twenty-four hours is normal in amount if there be no kidney disease) and an almost constant vesical tenesmus. The urine is alkaline in reaction and contains quantities of micro-organisms, pus, bladder epithelium, and mucus. The invasion in the severer cases may be marked by chill followed by fever. I am not aware that *ureteritis*, when not obstructive, gives rise to recognizable symptoms. In pyelitis there is more or less pain in the lumbar region, and if there is free drainage of the pus the symptoms are not otherwise marked. If, however, the ureter becomes plugged and the pus dammed back, severe constitutional disturbance ensues. There are irregular chills, fever, delirium, etc. The pelvis of the kidney and the kidney itself become converted into an abscess. Happily, with means now at our hands we are able directly to inspect the bladder and interrogate the ureters separately, and thus accurately to locate the seat of disease. In addition to the above method of infection, the kidneys may be the seat of embolic abscess—*i. e.*, the infecting agent is carried to the kidneys in the blood current. This is a part of a general pyæmic process. The renal involvement is not marked by any special sign different from those of an ordinary nephritis—*i. e.*, presence in the urine of pus, blood epithelium, and casts. The diagnosis rests upon the pathological condition of the urine associated with the chills, fever, and sweating of the general pyæmia.

*Mental aberration* sometimes follows operative procedures on the pelvic organs. I have seen three cases of this kind. Two of them were after plastic operations, and the third after an exploratory section. It is, however, only fair to say that the symptoms were present in the latter case, but not so marked before the operation as after it. The mental disease was of the delusional melancholia type in each instance. In the two plastic cases the operations were simple and the mental trouble developed a week or two later coincident with the symptom of painful urination, and was thought to be a mild type of septicæmia. Both cases recovered in the course of three or four weeks.

The amount of shock following operations in general may be said

to depend on the seat of the operation, the time occupied in doing it, and the amount of blood lost. Thus an operation within the peritoneal cavity causes more shock than one on the external surface of the body, and one lasting an hour more than one lasting half an hour. Practically, in the great majority of gynæcological cases the question of shock does not assume any importance when the anæsthesia does not last more than an hour. Of course this does not include the very debilitated subjects and the ones already suffering from shock due to hæmorrhage. The symptoms of a mild degree of shock are pallor, moist skin, and weak heart. As the shock becomes more profound these symptoms become intensified. The pulse becomes rapid, feeble, thready, irregular. Large drops of perspiration stand out on the skin, which becomes cold and clammy. The body temperature is reduced. The respirations grow more and more shallow until death is imminent.

During the waking up from ether there is usually more or less nausea and vomiting, which is somewhat approximate to the amount of ether taken. Usually the vomiting does not continue over twelve hours. Some patients entirely escape, while, on the other hand, one will rarely meet with a patient who vomits persistently for days every particle that enters the stomach until the question of vomiting assumes more importance than all the other symptoms. I have seen one such case. The patient, a lady in the twenties, was etherized on two occasions with the same result. I can heartily indorse her determination never again to take ether.

Undue hæmorrhage following an operation is indicated by pallor and a weak, rapid pulse coming on after the operation is over. These symptoms always demand prompt inquiry into the source of the loss of blood. It may come from an artery which was insecurely tied or from which the ligature has slipped, or from a vein which only began to bleed after the closing of the wound, or from numerous small vessels which were torn in the separation of adhesions. When the hæmorrhage is from an external part the soiled dressings and visual inspection will clearly show its origin. If the bleeding is in the abdominal cavity, and drainage has not been employed, one must depend on general symptoms for the diagnosis.

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A SUCCESSFUL  
SECONDARY LAPAROTOMY FOR HÆMORRHAGE  
FOLLOWING ABDOMINAL HYSTERECTOMY.\*

BY JAMES N. WEST, M. D., NEW YORK.

The chief interest of this case centers about the fact of its being a successful secondary operation for hæmorrhage following hysterectomy.

A brief detail of the conditions leading up to the operation will be given.

Mrs. I. R., admitted to the Woman's Hospital July 27, 1895. Age, thirty-two years; married seven years; two children, ages four and five years, and one abortion, six months before entrance to hospital, at four months.

The last child was delivered with instruments.

Menstruation was regular every twenty-eight days; duration five to six days; quantity was not excessive.

During the periods there was a great sense of weight and bearing down in the pelvis, accompanied by considerable pain.

The patient had complained of her present symptoms for about two years, the chief of which were pain in the lumbo-sacral region and in the left side, and the menstrual symptoms mentioned above.

Examination by vagina showed a lacerated posterior wall and cervix, considerable prolapse of the anterior and posterior walls, with the cervix presenting almost at the ostium vaginæ.

The uterus was considerably and asymmetrically enlarged, the enlargement being upon the right side. The whole fundus felt smooth through the abdominal wall.

It was determined to do a series of plastic operations for the relief of procidentia.

The first of the series, curetting followed by trachelorrhaphy, was done August 6th, for removal of the diseased tissue of the cervix and to promote involution of the uterus.

By the middle of September it was found that the uterus not only was not undergoing involution, but was becoming larger.

The pelvic symptoms were becoming more severe, the patient be-

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\* Read before the Woman's Hospital Society, January 14, 1896.

ing in almost constant pain. It was then decided to do an exploratory laparotomy.

This operation was performed at 2 P. M. September 17th.

The right side of the uterus was the seat of an intramural fibroid about the size of a hen's egg. The right ovary was badly diseased and contained a small cyst; there was also a small parovarian cyst on the left side. These conditions decided me to perform a total ablation of the uterus and annexa.

The cervix was quite elongated, and in dissecting it from the bladder and rectum an unusually large number of small blood-vessels were encountered. The uterine and ovarian arteries were tied with silk ligatures, cut short, and the uterus, with tubes and ovaries attached, was removed. The space between the rectum and bladder was firmly packed with gauze, covering the pedicles in the broad ligaments except those of the ovarian arteries. The pelvic vault was closed by suturing the peritonæum of the broad ligaments and flaps from the front and rear of the uterus with catgut.

The patient was put to bed in excellent condition, having lost but a very small quantity of blood.

She continued to do well, apparently, until about 7 P. M., when the house surgeon was called by the nurse on account of the vulval dressing being saturated with blood. He elevated the foot of the bed, removed this external dressing, packed about ten yards of sterilized gauze into the vagina, and replaced a vulval pad. Half an hour later this fresh dressing was completely saturated as before.

I was then sent for. Upon arrival, the patient's pulse was 125, respirations rapid, pallor was marked. At about 8.30 the patient was taken to the operating room and the attempt was made to ascertain the source of the hæmorrhage. Failing in this, and the hæmorrhage being considerable, the patient was hastily prepared for secondary laparotomy. Anticipating the necessity for secondary operation, preparations were made before my arrival.

Upon reopening the abdomen and placing the patient in the Trendelenburg posture the pelvis was seen to be almost free from blood, except along the line of suture of the broad ligaments. Upon removing the sutures, which united the pelvic peritonæum, extensive hæmorrhage was seen to proceed from numerous small vessels in the flaps dissected from the front and rear of the uterus. These were sutured over with catgut, and the posterior flap, from which considerable oozing was observed, was folded forward upon itself and quilted through with catgut.

All bleeding points having been secured, the space between the bladder and rectum was again packed with gauze and the pelvic peritonæum reunited with catgut. The vagina was then packed with gauze.

During the operation for control of the hæmorrhage, and near its completion, an injection of ten ounces of normal saline solution was made into the right median basilic vein.

During the course of the operation the pulse became almost imperceptible. About one drachm of brandy, one twentieth of a grain of strychnine, and fifteen minims of tincture of digitalis were hypodermically administered, and inhalations of oxygen were given.

The pulse showed no appreciable improvement until the intravenous injection, when marked improvement was observed.

The patient was put to bed and given a stimulating enema, containing two ounces of brandy in saline solution. The foot of the bed was elevated and the extremities were tightly bandaged. The inhalations of oxygen were continued for several hours. The improvement was slow but steady. Recovery was uninterrupted with the exception of a mural abscess and a slight cystitis.

The patient was discharged November 24, 1895, almost entirely relieved of all the disagreeable symptoms from which she had suffered.

Some points of interest to which this case calls my attention are the following:

1. That, within certain limits, the size is not so important an element in determining hysterectomy as the symptoms produced by and the location of a fibroid.

2. By closing the peritonæum and making all the ligatures extra-peritoneal, any hæmorrhage which occurred found its way into the vagina, and was easily detected, the large quantity of blood lost determining the gravity of the situation rather than the ordinary symptoms of hæmorrhage, thus enabling us to operate before it was too late.

3. As a rule, when the usual and well-marked symptoms of hæmorrhage have occurred and have been recognized, it is too late to operate successfully. The hæmorrhage and shock of the second operation will probably prove fatal.

4. When there is strong reason to believe that hæmorrhage is occurring it is absolutely the duty of the surgeon to proceed to radical measures for its control, and that his life-saving efforts are incomplete unless saline infusion has been employed.

5. It is very important that the quantity of saline infusion should not be excessive, from eight to fourteen ounces being sufficient in most cases. Larger quantities infused throw too much of a burden upon a heart the nutrition of which is impaired by the over-dilution of the blood.

6. Many of the cases which are supposed to die of shock die of hæmorrhage.

In conclusion, I should like to state that the successful termination of this case was due in a large measure to the assistance of a very efficient house staff.

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## TUBERCULOSIS INVADING THE UTERINE ANNEXA.\*

BY JOHN ASPELL, M. D., NEW YORK.

When a patient presents a tubercular deposit anywhere in the body it is more than probable that the disease is not local, but that the whole system is infected to a great extent. Removing the tubercular growths alone is not sufficient to place the patient in the way of recovery, but advantage should be taken of the relief to the system by improving the surroundings as promptly as possible. I have chosen the following cases not so much as examples of the various ways in which tuberculosis may affect particular organs—that is, not limited—but to show the difficulties that are encountered in diagnosing and adopting a treatment.

The first of one class of cases is that of Mrs. C. At the time I saw her she was twenty-nine years of age and had been married seven years. She had a child at the end of her first year. The labor was tedious and the puerperium long. For a year after her delivery she was more or less confined to her bed because of severe attacks of pain about the abdomen. Gradually the pains became less frequent, so that at the end of the second year she considered herself well save for an occasional backache. Her menstrual functions were normal. In the summer of 1893 she came to the Woman's Hospital in the service of Dr. Bache Emmet more as a companion to her mother, who had complete procidentia, but incidentally to learn the cause of her backache. She requested an examination, and it revealed a cystic

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\* Read before the Woman's Hospital Society, January 14, 1896.

tumor on the right side as large as an orange, and one on the left side somewhat smaller. There was no family history of phthisis, and her general appearance was that of a woman in good health. A physical examination of the chest was negative. With such an apparently innocent condition the prospects of an easy solution were bright. My surprise was great on opening the abdomen to find the peritonæum thickened and covered with miliary deposits; some of the nests were as large as a pea. The intestinal peritonæum shared in the collection. There was no free fluid in the abdomen. Both the cysts were readily removed. The tube on the right side was as thick as the index finger, and contained a solid chalky deposit. That on the left side was smaller, but contained the same characteristic substance. Both were tubercular.

The convalescence for eight days was smooth. On the ninth day she complained of a full headache and heat flashes. The temperature rose to  $102^{\circ}$ , and remained there, with but slight variations, for two days. A dry cough at this time made its appearance accompanied by profuse perspiration. A physical examination of the chest showed dullness, with broncho-vesicular breathing at the apex and toward the base of the left lung. The cough soon increased in severity with abundant expectoration. Moist râles were everywhere over the left lung, and a few made their appearance in the right. On the fourteenth day, with the temperature at  $103^{\circ}$  and the pulse 130, the face became suddenly drawn and anxious, purple in color, and bathed in a profuse perspiration. A most violent disease storm was going on. Paroxysm followed paroxysm of coughing till large pieces of gangrenous lung were projected from the mouth, followed by free hæmoptysis. She sank in her bed exhausted. Notwithstanding the severe ordeal she had gone through, I felt the only hope for her recovery lay in getting her away from the hospital ward to her home in the hills of Jersey as speedily as possible. After repeated restoratives she was strong enough to attempt the removal. She felt I was sending her home to die, and I must confess I had my own misgivings. Still, I was convinced that the exhausted and impure air she was breathing in the hospital was not beneficial.

Fortunately she reached her home without any mishap. A month later I saw her and an improvement had begun. There were recurrent râles through the upper lobe of the left lung, with cavernous breathing near the base. Two months later there was still more improvement. The temperature was uniformly  $100^{\circ}$ ; she ate well and rested well. The cough was less severe, but she could not lie flat



without bringing on a paroxysm. There was still a lingering septic appearance.

At intervals of a month or two encouraging news of her improvement was received. At this date she is so well as to come to town to do her shopping without much fatigue outside of some dyspnœa.

The interesting points of the case were that the lungs were not diseased enough to be detected by a physical examination before operation, and the rapid advance of general tuberculosis after operation. Whether this was due to a broncho-pneumonia or tubercular emboli I was at a loss to decide.

Another case quite similar to this one, but which did not progress any further than to show signs of lung decay, was that of an Italian woman of twenty-six years who appeared at St. Vincent's Hospital during the past summer. She gave the history of pain about the abdomen for two years. She was very well nourished and to all appearances in sound health. There was no family history of phthisis. An examination of the pelvis told of an inflammatory swelling on either side, not of large size but quite fixed, and, from the resistance, containing a thick fluid. Inasmuch as her condition was so good, an early operation was advised. Here the peritonæum was not involved, but the abdomen was so full of plastic adhesions that it was with considerable difficulty that two ovarian abscesses, with their inflamed tubes, containing a hard cheesy deposit, were brought to the surface. The tubes showed the presence of the tubercle bacillus. She recovered from the operation uneventfully and sat up on the twenty-first day. A few days later she complained of pain in the pelvis and the annoyance of a cough, with expectorations containing a liberal quantity of blood. The temperature rose to  $103^{\circ}$ . An examination of the pelvis showed a large swelling on the left side, quite tender just at the site of one of the abscesses. It could be felt for two inches above Poupart's ligament. An examination of the chest showed dullness at the left apex with moist râles. As there was evidence of pointing by the vagina, a puncture was advised, for I felt convinced this swelling in the pelvis was due to the presence of fluid of some sort. The trocar went through the vaginal vault in much the same manner as it would go through a rubber ball, with much the same sound. Nothing came from my puncture. The opening was enlarged enough to admit the finger, and I found a cavity without contents. I readily appreciated that the adhesions had closed in above and formed this dry cavity. The next day the median incision gently separated, exposing a fresh surface, as if newly made. Every endeavor was now directed toward

the tubercular condition. The temperature kept up at  $103^{\circ}$ , with a morning decline. Toward evening a flush and a feeling of discomfort with considerable cough and expectoration appeared. Had she been fortunate enough to possess a country home I would have acted as in the first case, but the best at our disposal was plenty of air with a wholesome diet, along with the medications usual in phthysical cases. So slow was her recovery that after four months the wound is only now healed. She has no cough. The chest has cleared, and there is no sign in the pelvis of any recurrent inflammation. There were undoubted evidences of tuberculosis here, but why there was no progress with everything in its favor is another peculiarity of the disease. These two cases were very similar in history and character, but differed from most cases of tuberculosis involving the uterine annexa in that there was no history of phthisis, there was no free fluid in the pelvis, and there was no evidence of disease outside of the pelvis.

Of the more common type is that of a young actress of twenty-one years who came to St. Vincent's with the story of failing health for one year and an abdominal swelling for three months. A glance without an examination would tell the character of the disease. The peculiar phthysical facies was well marked. An examination showed both lungs invaded and the abdomen containing about two quarts of fluid. An incision was made and the peritonæum found to be studded with miliary deposits. The tubes were thickened and tortuous. Irrigations of normal salt solution was the only procedure. The temporary relief was very encouraging. Her parents were sent for, and she was taken to her home in the West as soon as her strength permitted. I heard once that her improvement had increased, but that was the only report I received.

Further advanced cases of the same type were two domestics under twenty-five years who entered St. Vincent's within a week of one another. Both were far advanced in disease, and both were affected alike. Their histories were almost similar. There was the family history of phthisis, a long story of cough and loss of weight; flatulence, with abdominal swelling for months; the swelling at first subsiding toward morning, but latterly remaining uniformly excessive. Wishing to learn if irrigation in these last stages would prolong life, I made a median incision in one, but was obliged to desist after separating the adhesions for some distance. There was apparently no limit to them. In the process of separating the intestines, large pieces of loose lymph were freed and liberated. The separation was easy and bloodless, but the patient's condition was so low that

thorough irrigation was out of the question. There was no result from it.

In preparations for operation the pulse and urine are carefully noted, but the lungs are usually overlooked, unless there are some notes in the history pertaining to phthisis, and yet they are as important to the economy as the other internal organs.

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## REPORT OF FOUR CASES OF PELVIC ABSCESS FOLLOWING LABOR.\*

BY L. J. HAMMOND, M. D., PHILADELPHIA.

The point of particular interest to me in these cases is their ætiology, as I think the histories show beyond question that their origin was entirely the result of puerperal septicæmia. Two of them—the first and second—are also of interest to me as showing that with extensive inflammatory changes, involving the uterine appendages, a woman can become pregnant, carry the product of conception to full term, and be delivered of a healthy child.

CASE I.—Mary B., aged twenty-three years ; in perfect health until after the delivery of her first child in 1889. Her getting up was very slow, the history given me showing there was some septic infection. From this time she suffered greatly from pain in the right iliac fossa, which was always greatest at the approach of the menstrual period. She began to menstruate eight months after the birth of the child. She became pregnant the second time May 9, 1892, and was delivered January 1, 1893, of a healthy male child weighing eight pounds +. The labor was a rapid one, lasting only about two hours. When I reached the house the child was born. The placenta was delivered a few minutes afterward by the Credé method without any trouble. This was the first time I had seen the patient, having been attended during her first labor by a midwife. The usual aseptic precautions were taken, and, with the exception of very severe after-pain, nothing unusual seemed to present itself until, twenty-four hours later, when I made my first visit after the delivery, I found her suffering greatly from pain, which was confined mostly to the right side, the

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uterus markedly subinvolved and distinctly felt well over to the right and a free flow mixed with large clots. The pulse was 110 and the temperature 100°. Vaginal examination, which was made for the first time, disclosed a large mass on the right side, the uterus firmly fastened, and an old bilateral tear of the cervix; also considerable laceration of the perinæum, which had been neglected from the first labor, there being no acute laceration whatever. The temperature and pulse continued to mount higher and higher, and her general condition grew worse, until the eleventh day after confinement when she was placed on the table, the abdomen was opened, and in passing the finger behind the uterus the abscess was ruptured and at least ten ounces of pus were removed. The pus cavity was high up on the right side, behind and to the right of the cornua of the uterus. There was considerable loss of the uterine tissue at the seat of abscess, due, I think, rather to the presence of the pus than to its being in the uterine walls primarily, as the abscess was unquestionably the result of leakage of pus from the tube. The abdominal cavity was flushed with large quantities of hot water, a glass drainage-tube inserted and allowed to remain twenty-four hours, and the abdominal incision closed. The patient made a very satisfactory recovery. Eight months ago I again delivered her of a healthy female child, from which labor she made a perfectly natural convalescence and is well at this time. Examination of the uterus eight weeks after the birth of this last child showed it to be much smaller. There was, however, considerable fullness, but no pain and but slight tenderness. Dr. B. C. Hirst, who was present at the operation, agreed with me that it was impossible to remove the appendages. On removal of the glass tube it was found broken about its center. The lower portion, however, was readily removed by passing a hæmostat through its center and separating the blades at the same time traction was made.

CASE II.—Mulatto, aged twenty-four years; had three children. After the birth of the second child, during which she was attended by a midwife, she grew ill, complaining of severe pain in the pelvis, which from her history was not localized. I saw her with Dr. W. W. Moorhead two months after the delivery of the third child, and found her confined to her bed, where she had been almost constantly since her delivery. Examination disclosed a large accumulation filling up the entire floor of the pelvis, the uterus slightly subinvolved and resting against the bladder (in other words, it was held firmly against the bladder by the large abscess behind it). Cœliotomy was done the following day and not less than a quart of pus was emptied from a

left broad-ligament abscess, the uterus slightly larger than the average uterus of a multipara. The appendages in this case were also so firmly adherent that I made but slight effort to free them, owing to the extreme condition of the patient. The usual flushing and drainage of the abdominal cavity were here used, and the patient's convalescence was continuous though slow. The drainage-tube was removed on the third day. The tube track, however, did not close for about seven weeks, there being some pus discharged from it during this period. The patient is perfectly well, or was when I saw her some months ago. She was delivered of a healthy female child four months ago and made a perfectly natural convalescence.

CASE III.—Colored, aged eighteen. Nine days after the delivery of her first child I saw her with a student who had been present at her confinement, when I obtained the following history: Delivered of a stillborn child after labor of ten hours; no untoward symptom until third day after delivery, when she had a chill, followed by temperature of  $103^{\circ}$ , sweats, pain in right side, fœtid lochia, and all the symptoms that are well known to accompany acute purulent infection. Vaginal examination on the ninth day, when I saw her, disclosed a large boggy mass confined to the right side, great tenderness over the same region on palpation, temperature  $104^{\circ}$ , pulse 120; the breasts were also engorged and very painful. After thorough depletion by the bowel for twenty-four hours, the abdominal cavity was opened and about three ounces of pus, together with the tube and ovary, were removed. The left appendages were free and therefore not disturbed; the abdominal cavity was flushed with large quantities of water, drainage-tube inserted, and the wound closed. The drainage-tube removed in twenty-four hours, the patient made an uninterrupted recovery. The case showed some evidences of specific disease, though it did not seem to play any part in causing this condition, which was undoubtedly due to infection through the laceration of the cervix, which, though slight, was nevertheless sufficient, I think, to serve as a focus of infection. There was also slight laceration of the perinæum.

CASE IV.—Annie G., aged twenty years; in good health until the delivery of her first child seven weeks ago (December 28th). Extensive laceration of the cervix and perinæum, neither of them having been repaired, as she was attended by an old woman. After having suffered for six weeks after the delivery, she was seen by my brother, Dr. W. C. Hammond, when she gave the following history: High fever; great pain over the entire abdominal cavity, with greatest tenderness over the left iliac region. At this visit he found the tem-



perature  $103^{\circ}$ , pulse 140, very feeble; clammy skin, vomiting, constipation, and the woman generally in a very serious condition. He at once began the free use of stimulants and thorough irrigation of the birth track, and, as soon as the woman could stand it, depletion by the bowel with saline. The abdominal cavity was opened one week later, when two abscesses were found, one within the broad ligament, the other above and posterior to the uterus on the left side. Adhesions of the omentum were so great that a portion of it had to be ligated and cut off. The uterus was very large, and, together with the ovary and tube, drawn well over to the left and firmly bound down by strong adhesions, many of which were broken up; but the woman's condition was so extreme that nothing further was done except to empty the abscess cavities, break up adhesions, and flush the cavity with large quantities of water. The patient seemed to be doing well for twenty-four hours, with the exception of the high pulse-rate, which continued from 140 to 160; the temperature, however, dropped to  $101^{\circ}$ , and never went above that, the patient dying the third day. The death was unquestionably due to exhaustion, as the patient's condition was so extreme that I feared she would not even stand the ether; the lower bowel was thoroughly agglutinated by the inflammatory exudate arising from the general peritonitis which the woman had largely passed through when she was first seen by the doctor.

While the surgical intervention in three of these cases is little more than opening an abscess, the subsequent history of them seems to justify such a procedure, which might seem to some to be lacking in completeness. In two of the cases, however, it was not possible to have accomplished the removal of appendages without greatly lessening the possibilities of recovery of the patients; and since the operation two of them have borne children, I would hesitate to do more in other cases of the same character.

In cases like the third, where it is possible to remove the diseased appendage without greatly prolonging the operation, I think it would be bad surgery to allow it to remain.

In the fourth case the diseased structures could only have been removed by prolonging the operation, which would unquestionably have terminated the life of the patient much sooner than it did.

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## CHRONIC INVERSION OF THE UTERUS.\*

BY A. M. FULLERTON, M. D.,

Physician in Charge, Woman's Hospital, Philadelphia.

The cases I desire to report to-night well illustrate a fact frequently observed in gynæcological practice—viz., the remarkable tolerance which may be acquired for even the most serious lesions.

The first of these cases, C. G., was a hard-working German woman, aged sixty-seven years, but appearing much older. She was married and had borne four children. The eldest was forty-seven years of age, the youngest thirty-eight years. Two miscarriages had occurred during the child-bearing period. There was no history of menstrual difficulty, of abnormal labors, or of puerperal complications.

The menopause had occurred at the age of fifty-three years, without any disturbance. The patient thought she had suffered some from prolapsus previous to the occurrence of the menopause.

Two years before the date of her admission to the hospital, which was on April 16, 1895, she had strained herself in making efforts to replace a window blind. She said she then felt something give way, and that from that time she had carried a tumor between her thighs. The inverted uterus (which she thought was a cancerous growth) she declared had only appeared during the preceding five months before her admission to the hospital.

There was no history of hæmorrhage or pain. The patient was led to come to us for consultation simply because of the discomfort experienced in walking, and her fear that the supposed growth would increase.

An examination of the accompanying photographs, as well as of the amputated uterus, will give the best conception of the condition which existed. The rounded, dark-colored mass in the photograph represents the inverted uterus. The inversion of the vagina had apparently existed much longer than that of the uterus, as its mucous membrane had become skinlike from long-continued friction. The bladder had been so continuously overdistended that it was very large and extended down posteriorly to the uterus, so changing the relation of parts as to necessitate very careful manipulation to avoid wounding

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it in the operation subsequently undertaken. The uterine extremities of the Fallopian tubes and the broad ligaments were drawn down



FIG. 1.—Complete inversion, with procidentia uteri. (Dorsal position.)



FIG. 2.—The same. (Knee-and-chest position.)

into the inverted uterus. The dilated openings of the Fallopian tubes were shown most plainly at the uterine cornua, as is generally the case in chronic inversion. The question as to whether the inverted uterus

existed first, the inversion or prolapsus of the vagina occurring later, was one we could not decide from the meager history obtained. No uterine tumor existed; no record of puerperal complication; the cause for the inversion, therefore, remained problematical.

I did the operation for entire removal of the uterus and its appendages on April 20th, turning the stumps of the ligated ligaments into the vagina as it was returned to position within the pelvis, for the purpose of giving anchorage to the greatly relaxed vaginal walls. The patient did well after operation and returned to her home in a few weeks. The vaginal walls appeared to remain in place without difficulty. I advised, however, that she return for a Le Fort operation should the vaginal walls again descend.

Another case of complete inversion of the uterus came to me at the hospital during August of the same year. The tumor was supposed by the physician sending her to be a fibroid polyp of the uterus. In this case there was no descent of the vaginal walls.

Illumination of the vault of the vagina with the electric light greatly aided the examination. The circular, padlike constriction made by the cervix all around the tumor, beyond which the sound could not be inserted, the recognition of the openings of the Fallopian tubes, the dark-red velvety appearance of the uterine mucosa, were thus made plainly visible.

The patient was fifty-five years of age, married, and had borne seven children—one pair of twins. Her youngest child was sixteen years of age. All her labors were reported as being difficult, although not instrumental. No puerperal complications had existed. The menopause had occurred one year before admission to the hospital, without any history of difficulty.

Some years previously patient had suffered from a severe strain induced by lifting a boiler full of clothes from the stove. She had a sudden severe pain in her back and a sensation of something giving way in the lower part of her abdomen. This sensation lasted quite persistently for some time, recurring afterward with every menstrual epoch. The year before her admission to the hospital patient had a fall which she feared had injured her further. Upon examining herself she discovered the protrusion of a small mass from the uterine cervix. This had gradually increased in size until, when seen by me, it was about the size of a hen's egg.

The patient suffered no inconvenience from it other than a dragging sensation when obliged to be much on her feet.

After matters were explained to her, she decided against any opera-

tion either for attempted reduction of the inversion or for removal of the uterus. I advised tamponade of the vagina, as offering a possibility of reduction if persisted in for some time.

In seeking for a possible cause for the inversion in both these cases, there was but one that seemed to me plausible. In both cases an old cervical laceration existed, and in both there was a history of strain. Possibly the relaxed condition of the uterine cervix thus induced permitted the extrusion of the fundus as a result of the abdominal pressure exerted during the straining effort.

The cases are further remarkable, I think, from the fact that conditions so abnormal were not productive of greater constitutional disturbance.

## A CASE OF ECTOPIC PREGNANCY OPERATED UPON BY THE VAGINAL METHOD.\*

BY G. WILLIAM REYNOLDS, M. D., CHICAGO,

Gynæcologist to St. Joseph's Hospital; Instructor and Assistant to the Chair of Clinical Surgery, Rush Medical College, etc.

Cases of extra-uterine pregnancy have been found to be more frequent than was formerly supposed, and their treatment less formidable. Since no general rules can be applied in the treatment of all cases, the report of a case which presents special features in diagnosis and operation is valuable.

*History.*—Mrs. K., aged thirty-two years; married in 1893 at the age of thirty; menstruated regularly from the age of fifteen until August, 1894, when her menses ceased. In November she was supposed to have had a miscarriage; menstruation recurred in December, and continued regularly until October 9, 1895, when she entered St. Joseph's Hospital. She had a rather dull and continuous pain on the right side of the pelvis since her miscarriage. Her general health was otherwise good, and she was able to do her daily work. Her parents, five sisters, and three brothers are living, healthy and strong.

She entered St. Joseph's Hospital upon my advice, after an examination made a month previously. Digital examination revealed a

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firm, immovable, solid mass larger than the fist in the right pelvic region. It extended from the level of the internal os to the right broad ligament, occupied the triangular space between the broad ligament and uterus, and was firmly attached to the latter. A diagnosis of subserous uterine myoma was made.

Vaginal section was made October 11th, and a foetus of lithopædion type, about the size of a three months' gestation, was found. The foetus, placenta, and cord were removed intact. The incision was then sutured and an iodoform-gauze drain inserted, etc. Recovery was rapid, the patient's health was completely restored, and she left the hospital three weeks after the operation.



In this case I am certain that the tube ruptured into the broad ligament. The hæmatocele which resulted was consequently extra-peritoneal, and the extent of the hæmorrhage limited by the ligamental folds. The case shows the tolerance of the parts to retain the foetus and placenta for so long a time without any inconvenience other than pain.

The result of operations for ectopic pregnancy has been so favorable to the abdominal route that I have not found in the records of recent years any case operated *per vaginam*. This case is brought to your attention to emphasize the inquiry whether the vaginal route

has not received undue censure, even in the cases in which it is the preferable operation. The published cases which illustrate the results of the vaginal operation are not numerous. Parry refers only to a few cases. Pinard (*Dictionnaire encyclopédique des sciences médicales*) gives a list of cases, but his classification is not entirely correct, and he gives no details of cases. Hermann collected thirty-three cases which had been operated upon through the vagina, and draws conclusions which Tait says "may be taken as practically fatal to vaginal section." Among the cases which Hermann considered was one by T. Gaillard Thomas, of New York, and others by Harrison and O'Hara; and "so far as these cases go," says Hermann, "they show that the operation is not a very safe one." Although the operation reported by Dr. Thomas, which was performed twenty years ago, was a brilliant success, the operation was so severely criticised that the vaginal operation has since been in disfavor, even in cases like the one under consideration, where it is not only justifiable, but preferable to the abdominal operation.

It is of interest to note that this case belongs to a rare class of cases in which Dr. Hermann advised the vaginal operation. In an address before the Obstetrical Society of London (see *Transactions* for 1887) he said:

"When the child lies behind the uterus, with its presenting part occupying Douglas' pouch, the coverings which separate it from the vaginal canal are often very thin. It may be possible to identify through the vagina the sutures of the foetal head. If, as in this case, we can, through the vagina, feel the presenting part of the foetus, and that it is everywhere separated only by a thin membrane from the examining finger, we may be pretty sure that the placenta is not in the way. Given, then, a case in which the child can be reached by the vaginal incision, in which it is quite certain that the placenta is not implanted over the parts which have to be cut through, and in which it is not equally certain that the placenta is not attached to the abdominal wall, it appears to me that vaginal delivery is indicated. There is yet a condition which makes the indication clearer—namely, when the foetal part felt through the vagina is the head or feet, so that when the vagina is cut through, the child can be seized and extracted without passing in the hand."

"The curious thing," says Tait, "is that the great bulk of my patients had no suspicion that they were pregnant at all, and therefore the first factor in a correct diagnosis was absent. Of all the cases that I have operated on, and in many where I have known the his-

tory, the patient had made no complaints till the alarming symptoms of rupture had set in."

Such testimony appears to be common to all who have written upon this subject. It is a noticeable fact that the literature of the subject is in a confused state. The profession, however, has in recent years achieved great triumphs in the treatment of ectopic pregnancy. Werth wisely suggests that ectopic pregnancy should always be regarded as a malignant growth, and treated as such. The rare cases of tolerance or of spontaneous recovery do not justify expectant treatment.

315 WEBSTER AVENUE.

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### TUBAL ABORTION.\*

BY CHARLES N. SMITH, M. D., TOLEDO, OHIO,  
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In the following case of ectopic pregnancy the diagnosis was not made until the abdomen was opened. The patient had lived apart from her husband for several months prior to her entrance into the hospital. As there were no reasons for suspecting the woman to be guilty of sexual irregularity, and as she avoided reference to this subject, ectopic pregnancy was not suspected. The history of the case, as here related, was obtained after operation, and only when the patient was confronted with the pathological proof of her condition.

CASE.—M. V., aged twenty, married at fifteen, never before pregnant. She menstruated first at thirteen, and, until her marriage, the flow was always regular and painless. Two weeks after marriage she contracted gonorrhœa from her husband, and was confined to bed for two weeks with pelvic inflammation. It was about three months after this attack before she was able to do housework. Since the attack of gonorrhœa the menses have been painful, scanty, and of but two days' duration. The patient has not lived with her husband since December, 1893, but now admits that she has been exposed to impregnation many times since that date.

Menstruation appeared, as was expected, on April 20, 1894, and was in every respect similar to her usual periods. On the night of

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May 19th she took a rapid horseback ride of four miles. On awakening the following morning she experienced sudden, severe pain in the lower abdomen, followed by tenderness in the same region. A few moments after the onset of pain she fainted and remained unconscious about thirty minutes. Soon after regaining consciousness she arose, dressed, and did light housework during the day. The menses, or, more strictly speaking, a uterine hæmorrhage, appeared that day, which was the thirtieth after the beginning of the last period. The flow was scanty in amount, and continued for forty-two days, until the time of operation.

On the night of June 4th, while dancing, she experienced sharp pain in the abdomen, again fainted, and remained in a semi-unconscious condition for seven hours. She was admitted to the medical ward of St. Vincent's Hospital, June 10th, where she was treated for twenty days with salines and hot applications. During this period her pulse ranged from 100 to 120 and her temperature from 100° to 101°. A diagnosis of salpingitis and pelvic peritonitis was made, which was certainly warranted in view of the meager history then obtainable. June 30th she was transferred to my service, and cœliotomy was performed July 2d. Examination prior to operation showed the pelvis to be filled with a semi-fluid mass which crowded the uterus firmly against the pubic symphysis. There was a slight bloody discharge from the uterus.

Upon opening the abdomen, the intestines and omentum were found firmly adherent over a fluid collection which filled the whole pelvis. Upon separating the adhesions, a quantity of thick, dark blood escaped. The nature of the case being at once evident, a larger opening was made into the cavity, from which more than a quart of dark fluid blood, with but few clots, was removed. The inflammatory action, which had been continuous at least for three weeks, had resulted in the formation, by adhesions, of an adventitious cyst wall fully one fourth of an inch in thickness in some places, as you will notice from the specimen. This adventitious tissue was separated from the intestines and pelvic wall as far as possible consistent with the integrity of the intestines and the safety of the patient. In many places, however, it was impossible to thus effect a separation, and numerous small tags of tissue were left attached to the bowel. After both tubes were ligated and removed it was found impossible to separate a portion of the sac which was adherent to the posterior surface of the uterus, so intimate was the union between them. To leave this structure attached to the uterus was to invite intestinal ad-

hesions, with possible obstruction and death, and to favor sepsis by leaving within the pelvis a considerable quantity of poorly nourished tissue. The uterus was consequently removed by total extirpation. The recovery of the patient was slow, and, save for a small recto-vaginal fistula, complete.

On examination, after operation, the left tube was found to be more than an inch in diameter. The abdominal ostium was patent and fully three eighths of an inch in diameter. The tube was not ruptured. A firm body was felt within the tube, at the junction of its middle and outer thirds, which, upon incision of the tube, proved to be an apoplectic or blighted ovum, three fourths of an inch in diameter and an inch in length. The microscope demonstrated the presence of chorionic villi. The case was therefore one of incomplete tubal abortion.

The pain, unconsciousness, and uterine hæmorrhage which she experienced were undoubtedly synchronous with the tubal hæmorrhage and death of the ovum. The pregnancy had existed not to exceed thirty days. The pain and semi-unconsciousness on the night of June 4th marked the occurrence of a second free hæmorrhage from the tube.

No embryo was found within the ovum. The extensive hæmorrhage had completely obliterated the amniotic cavity, and the ovum was laminated and hard. It must be borne in mind that the ovum remained in the tube for forty-two days after its death. The presence of chorionic villi was alone sufficient, however, to establish the diagnosis.

This case illustrates a number of the interesting features of tubal abortion, a subject which, compared with ectopic pregnancy with rupture, has received but slight attention. I believe that tubal abortion is far more common than is generally supposed, and that it is the cause of the majority of cases of intraperitoneal hæmatocele, developed at the time of a regularly recurring menstrual period. The concurrent uterine hæmorrhage is a phenomenon associated with the shedding of the uterine decidua, and is not a true menstruation. The cases of intraperitoneal hæmorrhage not due to tubal abortion are, almost without exception, the result of rupture of a pregnant tube. I can not accept the view, still held by many, of a reflux of menstrual blood from the uterus, through the tube, into the peritoneal cavity, as a cause of intraperitoneal hæmatocele. In the majority of cases of ectopic gestation terminating at a regularly recurring menstrual period—that is, at the fourth week of gestation—the



route followed by the hæmorrhage and ovum is through the unclosed abdominal ostium of the tube and not through a rupture in its wall. The case here reported might readily have been mistaken for hæmatocele from reflux of menstrual blood had the abortion been complete and had it been followed by absorption or artificial evacuation of the fluid.

During the early weeks of gestation the attachment of the ovum to the tube through the villi of the chorion is slight, and renders the life of the ovum most precarious, especially if it be situated in or near the outer third of the tube. Slight contractions of the tube, or hæmorrhage into or about the foetal structures, may be sufficient to partially or completely dislodge the ovum, which may or may not be expelled into the peritoneal cavity.

When complete abortion occurs very early in gestation the hæmorrhage should cease, and should not recur, for, the tube being empty, there no longer remains an exciting cause of hæmorrhage. On the other hand, when the separation of the ovum has been but partially accomplished, hæmorrhage is prone to either continue or recur, as in incomplete uterine abortion, from further separation between the foetal and maternal structures. When the ovum is expelled from the tube and the hæmorrhage has not been extensive, absorption of both ovum and blood may follow. If the blood be evacuated by abdominal or vaginal section, the ovum may be so entangled in a blood clot, or may so closely resemble the latter, as to be entirely overlooked. In any of these events an incorrect diagnosis of hæmatocele from reflux of menstrual blood or from simple tubal hæmorrhage might readily be made.

Tubal abortion can only occur during the first eight weeks of gestation. Closure of the tube, which begins about the sixth week, is ordinarily complete by the eighth week, after which the ovum can escape only by rupture of the tube. The maternal blood-vessels steadily increase in size from the time of impregnation to that of abortion or rupture. The earlier the abortion takes place the less will be the amount of hæmorrhage, provided the abortion be complete. In early abortion, for the same reason, the hæmorrhage and consequent formation of the hæmatocele will be gradual. This gradual occurrence, coupled with the early arrest of hæmorrhage, gives opportunity for the formation of adhesions between the uterus, omentum, and intestines which circumscribe the escaped blood. In a very small proportion of early cases slight hæmorrhage may occur into the ovum, which renders it apoplectic, but may not cause its dis-

charge from the tube or produce a hæmatocele. An apoplectic ovum may undergo absorption without the production of further symptoms.

The question of operative interference in free or in recurring hæmorrhage from tubal abortion has been absolutely settled, but that of non-recurring, circumscribed hæmorrhage is still open. It can not be denied that in some cases absorption ultimately takes place and the patient regains her health. The period of convalescence is, however, frequently tedious, stormy, and dangerous. At best, a diseased tube and dense adhesions between the pelvic and abdominal organs remain to menace the woman the remainder of her life. If the blood be not absorbed, suppuration may occur, and this complication, although comparatively infrequent, must be looked upon as one which threatens every intraperitoneal hæmatocele. When suppuration takes place operation is inevitable, and must be done under comparatively unfavorable circumstances.

I can not but feel, even in the face of able and strong opposition, that for the immediate, as well as for the ultimate, safety and comfort of the patient, operation should be instituted in every case of intraperitoneal hæmorrhage, be it circumscribed or free, recurrent or non-recurrent.

1921 FRANKLIN AVENUE.

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## A CASE OF ABDOMINAL PREGNANCY PROGRESSING TO TERM, WITH PRESENTATION OF SPECIMEN.\*

BY W. REYNOLDS WILSON, M. D.

In reporting the following case I would ask the members of the Society to note certain points in the history bearing upon the diagnosis. The conditions were such as to obscure the true nature of the case and to increase the difficulties in the way of a successful termination of the pregnancy by surgical means. The gravida was admitted to the Philadelphia Lying-in Charity on December 21, 1895. According to her statement, she was then at the expiration of her ninth month. Her previous labors—two in number—had been uneventful, and the history of her menstrual periods was normal. She was a colored woman, twenty-six years of age. The pelvic measurements showed a

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\* Read before the Philadelphia Obstetrical Society, March 5, 1896.

shortening of the external conjugate to 16.5 centimetres. The position of the child could not be definitely made out, but the back seemed to be anterior and toward the fundus. The foetal heart was heard on the left side somewhat above the line corresponding to the umbilicus.

The record of the case after admission to the confinement ward is as follows: The patient had been suffering since admission from constant pain, somewhat colicky, and localized at the umbilicus. With the continuance of her symptoms she became emaciated, and her temperature rose on the fifteenth day to  $101.2^{\circ}$  F. The abdominal wall became somewhat oedematous and glazed. The foetal movements were still distinct, although the heart sounds were less audible. The patient's condition was so grave that, notwithstanding the absence of labor pains, it was decided to induce labor. A silk bougie was introduced with difficulty, and seemed to penetrate to the depth of not more than six inches. The vagina was tamponed with iodoform gauze. This was removed in eight hours. The cervix was found to be softened, although the resistance to the introduction of the sound was still present. The patient was etherized and the internal os forcibly dilated. The uterine cavity was found to be three and a half inches in depth, and contained soft clots and shaggy decidual tissue attached to the fundus. No presenting part was detected. A provisional diagnosis of abdominal pregnancy was made and the patient prepared for section. The thin abdominal wall was incised, and immediately beneath it the amniotic sac was discovered adherent to the parietal peritonæum. On incision into the sac, free, steady oozing occurred. The foetus, fully developed and weighing seven and a half pounds, was lying transversely, and was extracted by the feet. The cord, which measured only twenty centimetres, was pulseless, and the foetus dead. The placental tissue protruded through the incision, and the enlarged and softened uterus remained beneath this in the pelvis. Packing the cavity proved ineffectual in controlling hæmorrhage, which seemed to come from the spongy chorionic tissue deep down in the pelvis, and the patient died in little more than an hour after the operation.

The necropsy revealed the amniotic sac adherent to the intestines, and the placenta distributed over the pelvic and abdominal viscera on the right side. The right tube and ovary were incorporated in this mass. The uterine wall was thickened and the entrance to either tube pervious.

At no time in the history of the case had there been signs of tubal

rupture, and the probability of a direct abdominal pregnancy was suggested. The accession of labor was not marked by the occurrence of labor pains, and the patient complained only of the general distress and abdominal pain localized at the umbilicus, from which in a more or less aggravated form she had suffered during her pregnancy. The only diagnostic points bearing upon the case were: First, the unusual proximity of the foetal members to the abdominal wall; second, the detection of the pulsating cord beneath the skin; and, third, the absence of resistance between the foetal tumor and the swelling immediately above the symphysis (the uterus).

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## A NEW OPERATION FOR CERTAIN CASES OF PROCIDENTIA UTERI.\*

BY CHARLES P. NOBLE, M. D.,

Surgeon in Chief, Kensington Hospital for Women, Philadelphia.

The operations usually done for procidentia uteri, in my hands, have yielded very satisfactory results. For some years I treated these cases by amputation of the cervix, anterior colporrhaphy, and perineorrhaphy. Of the cases operated upon in this way, in only one did the uterus again markedly prolapse. In some of them, however, especially when the uterus was retroverted, it would sink enough in the pelvis to cause dragging sensations, and also to favor the formation of a small cystocele. The percentage of cases, however, in which even this partial failure was observed, was quite small. I have myself operated a second time but once in all cases operated upon by the method described. In one other case the operation was a complete failure.

During the past few years, in addition to the operations formerly done, when the uterus was markedly retroverted, and in all cases in which procidentia was marked, I have done a hysterorrhaphy. Of these cases, so far as I know, a cure has been obtained in all but one. Not only have the cases not returned to me for further treatment, but also I have failed to hear of them as being in the hands of the various other gynecologists in the city.

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\* Read before the Philadelphia Obstetrical Society, March 5, 1896.

These general remarks are made to show that I feel that the average case of procidentia can be satisfactorily dealt with by the operations heretofore in use for the treatment of this condition. Failure to obtain good results, as a general statement, in my judgment, is due to the application of the operations rather than to the operations themselves. There is a class of cases, however, to which these remarks do not apply. I refer to those cases of complete or partial procidentia, in which the vagina is stripped off from the rectum and Douglas' pouch is deepened down to or near the anus. Intra-abdominal pressure in these cases can act very much more disadvantageously than in those cases in which Douglas' pouch occupies its normal plane, and therefore the probabilities of recurrence after operation are much greater than in the more usual cases of procidentia. As illustrating this point, I will report the case of Mrs. B., who consulted me first in November, 1894. Her age is forty-seven and she is the mother of seven children. For twenty-three years she has had falling of the womb, and for twenty years complete procidentia. On examination, the uterus was found completely prolapsed, protruding from the vulva. The vagina also was turned completely inside out, and a large cystocele was present. The posterior vaginal wall was stripped away from the rectum down to the anus, and the lateral vaginal walls likewise were stripped away from their normal attachments. On February 9, 1895, I operated upon her by amputating the cervix and performing anterior colporrhaphy, perineorrhaphy, and hysterorrhaphy. She made a good recovery from her operation. The result from the perineorrhaphy, it should be said, was not as good as is usually obtained. Mrs. B. was much improved for a time, and the uterus remained in the pelvis. It was not long, however, after she resumed her usual occupation before the posterior wall of the vagina bulged forward, dragging upon the cervix, which in time elongated sufficiently to protrude from the vulva, although the fundus remained attached to the abdominal wall. It was evident that a more radical procedure was necessary to cure this patient. On January 25, 1896, I reopened the abdomen and did a hysterectomy after the method used in dealing with fibroids. The cervical stump was sewed up, and it, together with the stumps of the broad ligaments, was covered over with the bladder peritonæum. The remaining portion of the cervix was then anteverted, and the posterior wall of the cervix was sewed to the abdominal wall. As the attachments of the vagina to this part of the cervix are very intimate, it practically amounted to sewing the vagina to the abdominal wall, without having the disadvantage of



opening into this canal. A careful examination of Douglas' pouch showed that it was deepened almost to the anus. On February 20th lateral colporrhaphy and perineorrhaphy were done. Mrs. B. has made a good recovery from these operations and has a very firm perinæum.

I report this method of dealing with this class of cases as a distinct advance on the methods heretofore in use, recognizing, however, that the abnormal deepening of the pouch of Douglas has not been remedied, and that therefore intra-abdominal pressure may again cause the posterior wall of the vagina to bulge forward. In that case the only thing additional which can be done is to cut through the vault of the vagina behind the cervix and pack the pelvis with gauze, with the object of obliterating Douglas' pouch by the formation of adhesions. I wish to offer the operation reported herewith, and the suggestion of the packing of the pelvis with gauze, as a contribution to the treatment of this particular class of cases of procidentia.

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## EDITORIAL.

### PROFESSIONAL CONFIDENCES: THE CASE OF DR. PLAYFAIR.

A few months ago we discussed in an editorial the duty of the medical practitioner toward his patients in the matter of professional confidences and we also pointed out at that time the abuses which exist in that relationship and their causes. Among these latter we mentioned, as a prominent factor in breach of confidence, the garrulity of medical men toward their wives regarding professional matters. Our text for that editorial was taken from an English source and now again we call our readers' attention to the position we then maintained, which finds its vindication and draws its moral, from the same source, in the celebrated case of Kitson *versus* Playfair. The universal and perfervid discussion which this has aroused can only end in completely removing the subject, in every country, from the domain of medical ethics and in placing it in that of civil or criminal statutes with prohibitive penalties for their transgression. It is best that this should be so, for when the medical profession, in its individual members, presents so frequent and flaunting examples of disregard for the existing laws, regulating the professional relationship of medical men with each other, when the "brokerage" spirit of "bulling" and "bearing" the medical market is daily becoming more and more rife among us, it is time that laymen received protection from the civil authorities.

If any moral has been drawn from the results of this celebrated case by the great lay public, it is this : That the medical profession, individually, has outgrown to a great extent its respect for and its former instinctive obedience to its own ethical laws ; that there exists among us a seemingly hopeless divergence of interpretation of these laws ; and, finally, that we possess no authority to compel uniformity of interpretation and to enforce obedience thereto.

Nor has this impression been produced by the action of the defendant before or at the time of his trial—for the profession at large could not have suffered by the course of action pursued by one man, however celebrated—but by the opinions, categorical and otherwise, expressed by medical experts during the progress of the case and, above all, by the vehement and indiscreet defense of Dr. Playfair's principles of action by the medical press, especially in England.

We believe Dr. Playfair was wrong and that his defenders were still more culpable, for they had not the same personal motive to obscure their judgment.

No one who knows Dr. Playfair well can hesitate for a moment in regard to the fact that his determination and subsequent action toward the plaintiff were dominated by entire singleness of purpose and by conscientiousness. But we maintain that his judgment was at fault, that he subordinated his professional duty to his personal or family interests. That the patient to whom he owed the duty of silence in this case was also a connection of his family and was admitted upon dangerously intimate terms of companionship therewith in no way altered nor modified his professional obligation of discretion.

There is a moral law which, in our view, admits of no exception ; a law which applies to physicians, lawyers, clergymen, and statesmen—to all, indeed, who accept a *public trust*. This law demands that private and personal interest shall always be subordinated to public trust. It matters not whether this trust effects, in a given case, one individual or many, it is sacred and paramount. Nor is it an exception that a physician is relieved of his duty of silence in regard to the confidences of a patient, where his silence would make him an accessory before the fact to a crime. For, as the greater includes the lesser, so his responsibility to the public at large, *i. e.*, to the State, must outweigh his responsibility toward the public as represented by an individual.

What strikes us as most extraordinary is that Dr. Playfair did not find, in his capacity merely as head of his family, some way of stopping friendly intercourse between the plaintiff and the latter. This

could surely have been done without at all betraying the knowledge which he acquired as a physician. And, with this object attained, his sense of responsibility as an individual should have been satisfied.

Although we must condemn Dr. Playfair's action as altogether unwarranted and as deserving of punishment, this does not prevent us from feeling for him the deepest and sincerest sympathy. For, as we have already stated, we know him to be a man thoroughly conscientious and with the strictest sense of honor. It was his judgment which was at fault and not his heart. It is well, however, for the profession at large, when so honorable and justly celebrated a physician as he could be guilty of so serious a misinterpretation of his duty, that the subject has been thoroughly brought under public discussion and that a decision upon the duties of professional men will be so unequivocally uttered by the law, that there will no longer exist the possibility of misunderstanding.

The question was raised, during this trial, whether a physician was debarred from telling his wife the secrets of his patients—whether, indeed, such a communication was not “privileged.” This is, in our opinion, a monstrous proposition and founded upon an entirely false conception of the Divine dictum that “a man and his wife are one.” They are “one”—or should be—in their personal and individual relations to each other, but what has this to do with their individual relations toward others? Do not both the ecclesiastical and civil law maintain the individual responsibility of each separately for his or her own acts? Is a wife hanged because her husband has committed murder or is a man condemned because his wife has committed adultery? Let a husband tell his wife everything which concerns himself personally—this would be quite within his duty and would add, we doubt not, to conjugal felicity—but let him remember that the secrets of others are not his to impart but belong only to those who trusted him. His wife has no more right to a knowledge of them than has her dearest woman friend.

## CORRESPONDENCE.

## LAWSON TAIT AND THE SURGICAL TREATMENT OF THE BROAD-LIGAMENT PEDICLE.

167 CLINTON STREET, BROOKLYN, N. Y., April 26, 1896.

*To the Editor of the American Gynecological and Obstetrical Journal:*

SIR: There is an article in the *Medical Record* of April 18, 1896, by Lawson Tait, on the evolution of the surgical treatment of the broad-ligament pedicle, in which he makes the following statements that are surprising, to say the least: "For these two reasons I want to get away from the ligature if I can, and after years of experimenting and thought I think I have at last succeeded. But the difficulties have been so great that I have not yet ventured to apply my plan to a living subject. Fortunately, however, for my consistency, dead animal tissue is helping me, and experiments on animals are unnecessary for this purpose at least. My constant feeling has been that in the cautery we should find the solution of the difficulty; and it shows how careful we ought to be in all our experiments in surgery, that it was not till after at least two years' consideration of the subject that it dawned on me that we did not understand how the cautery really works. I do not think that Baker Brown or Keith understood how they arrived at their certain and magnificent results. I am sure the bystanders did not. Every one of whom I have asked questions has answered, 'Oh, yes; sear the stump! Barbarous practice, going back to the days before Ambrose Paré.' But Keith did not sear the stump. It is true he burned a piece of it off after securing it with Baker Brown's clamp, and if searing had been the means of his success he would have stopped there. But he went on for about twenty minutes or half an hour rubbing the clamp with his cautery, and clearing it with towel or sponge, until the onlookers got weary of the proceedings and thought Keith was finical. What he had done was really this, and I found it out only after much experimenting: he had seized a transverse strip of the pedicle between the iron blades of his clamp, screwed the blades up tight, and then heated them up to the cooking point (that is, practically between 180° and 190° F.) and carefully maintained that temperature till the inclosed strip of pedicle was cooked dry into a strip like parchment. Now Keith either did not understand what he was doing, but was



acting merely by rule of thumb, or else he kept his real reason for using the cautery a profound secret. Had he seared the tissue, the probability is that either hæmorrhage would have occurred soon after the patient recovered from the shock, or that the burned mass would have caused pelvic suppuration ; it could not have been absorbed."

It is certainly very interesting to know that Mr. Tait is about to adopt Keith's method of treating the pedicle, and it is equally surprising that he remained in ignorance of that method when full information regarding the whole subject was at hand.

Mr. Tait appears to have been most unfortunate in his investigations of this subject, and is thoroughly wrong in saying that "Keith either did not understand what he was doing or else he kept his real reasons for using the cautery a profound secret."

More than eighteen years ago Keith described to me his method of using the cautery and the way in which it acted as a perfect hæmostatic. His description was more clear and complete than that given by Lawson Tait, and ever since I have taught the use of the cautery to those who have attended my lectures. Furthermore, in my work on diseases of women, published in 1889, the following account of the cautery and clamp is given at page 513 :

"In the management of the pedicle, for example, we find that even the renowned operators do not all agree. Through the influence of the most successful of all operators (Thomas Keith), I am firmly convinced that the cautery gives the best results, and I am also satisfied that it is because the method of using it is not fully understood that it is not more generally employed. The object is to desiccate at least half an inch of the end of the stump and avoid charring it. This can only be accomplished by strongly compressing the pedicle, using a heavy clamp with blades half an inch thick, and then heating it with a very heavy cautery until the portion in the grasp of the instrument is thoroughly desiccated. The stump thus treated looks like a piece of translucent horn. The divided ends of the vessels are completely closed, which guards against hæmorrhage. I presume that the end of the stump does not slough, but becomes hydrated, and finally organized.

"The advantages of the cautery may be briefly summarized as follows :

"It is a reliable way of controlling hæmorrhage ; it leaves the stump in a condition requiring the least reparatory care ; and, finally, it avoids all sources of irritation, such as that to which the ligature gives rise.

"I have recently employed a cautery clamp which, I think, has some merits worthy of notice. It compresses the pedicle on four sides. The long blades keep the tissue from spreading, while the short sliding blade presses the tissues against the other cross-bar. The advantage of this is that the pressure upon the pedicle is equal at all points, and it thereby gives a smaller stump. The trouble with the old straight clamp is, that it spreads out the pedicle too much, and while it firmly holds the central or thickest part, the outer edges are liable to slip out of its grasp."

I may add that I have known many other surgeons who fully understood Keith's method of treating the pedicle and had faith in its superiority, and that from five to ten minutes is the time required to use the cautery. Keith often did ovariectomy completely in less time than Tait says he consumed in the treatment of the pedicle. Perhaps Tait has only seen Keith operating in exceptional cases.

ALEXANDER J. C. SKENE, M. D.

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#### THE GENERAL PRACTITIONER IN RELATION TO SPECIALISTS.

DETROIT, MICH., April 16, 1896.

*To the Editor of the American Gynecological and Obstetrical Journal :*

SIR : The editorial in the April number of the AMERICAN GYNÆCOLOGICAL AND OBSTETRICAL JOURNAL on Specialties and the General Practitioner is very timely and to the point. The question can not be discussed too thoroughly, and I hope you will continue the subject.

We certainly must admit that many specialists become one-sided and are inclined to accept the work of the general practitioner in reference to diagnosis of the case he may bring, and often operate, of course, for real pathological conditions. Still, these, although they may require an operation, are not the cause of the symptoms of which the patient especially complains. It is simply a poor diagnosis. The patient continues to ail, and abdominal and gynecological surgery is brought into bad repute. Many cases with obscure symptoms are referred to gynecologists with the expectation that an operation will remove the symptoms. If the operation wanted is either for lacerated cervix, removal of the uterus, the appendages, or all the generative organs, the gynecological and abdominal surgeon must be an extra good diagnostician to be able to tell beforehand when his operation

will not cure the patient absolutely, though it may, however, relieve *some* of the symptoms, but not all.

The point to which you call attention is especially well taken—namely, specialism often finds discouragement because the general surgeon and often the general practitioner take big chances in operating on cases which he thinks are easy and in which there is a fee; while the difficult, complicated, and chronic cases who have been to various hospitals, sanitariums, and a dozen doctors, and who have expended all their means in trying to get relief, are kindly turned over by the general practitioner and surgeon to the specialist for operation, *of course for nothing*, and with the chances of very materially reducing his record. The easy cases he does not get.

If the general practitioner would think for a moment, he would readily see that it does not pay for him to meddle with even simple cases, for they will pay him only a very small fee, and the instruments and paraphernalia required will reduce his fee still more; and then it does not help his reputation to any extent, as they only see such a case once or twice every year or two. Every practitioner has sworn that the highest ultimate good of his patients shall be his constant aim, and every honest practitioner knows that he is not as competent to operate on such cases as one who has had large experience and who has all the instruments and the facilities of a well-equipped cœliotomy room. It is different in the young man who expects to make that ultimately his life work. He will prepare himself by assisting in many such operations, perhaps for years, and finally do them himself; but the man whose environments are such that he can not and does not expect to do many of that kind of operations is simply dishonest, does not do justice to his patients and ultimately will injure himself.

J. H. CARSTENS, M. D.

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## REVIEWS.

DISEASES OF CHILDREN. By J. LEWIS SMITH, M. D., Clinical Professor of Diseases of Children in the Bellevue Hospital Medical College, etc. Lea Brothers & Co., Publishers, Philadelphia.

The demand for an eighth edition of this well-known book indicates its appreciation as a text-book and work of reference. The present volume comes to us considerably enlarged and much more profusely illustrated than the previous editions.

The rewriting of a large part of the book and the addition of some new chapters has been made necessary by the great advances that have recently been made in our knowledge of the ætiology and pathology of the diseases of children. The study of diphtheria and its therapeutic requirements and the artificial feeding of infants have attracted more attention than any other subjects in this branch of medicine in recent years. These chapters have been carefully rewritten, and a large amount of new material introduced. That on diphtheria is particularly deserving of praise for its conscientious review of the literature and the impartial discussion of the antitoxine treatment. The chapters upon the surgical diseases of children, written by Prof. Stephen Smith, have added greatly to the value of the work. The article upon intubation is contributed by Dr. Joseph O'Dwyer, the inventor of the operation, and is all that could be desired. The section upon the diseases of the skin has been ably written by Dr. A. R. Robinson, and an extensive formulary added. All things considered, this volume is the most complete and satisfactory text-book with which we are acquainted. The typographical work is excellent, and the binding neat and attractive.

G. H. M.

ZUR LEHRE VON DEN ANGEBORENEN UND ERWORBENEN VERWACHSUNGEN UND VERENGERUNGEN DER SCHEIDE SOWIE DES ANGEBORENEN SCHEIDENMANGELS, MIT AUSSCHLUSS DER DOPPELBILDUNGEN. Von Dr. F. L. NEUGEBAUER, Berlin, 1895. Verlag von S. Karger. (A Contribution to the Study of Congenital and Acquired Adhesions and Stenoses of the Vagina and Congenital Absence of the Vagina, with Exclusion of Double Formations. By Dr. F. L. Neugebauer, Berlin, 1895. Published by S. Karger.)

The monograph was incited by the desire to furnish a contribution in dedication of the fiftieth anniversary of the Berlin Gynæcological Society. The author in this article has collected one thousand cases of the pathological lesions indicated in the title. Each authentic case is stated in clear and concise outlines, giving the name of the observer and source from which it was obtained. It is a masterpiece of patient and persevering industry. When we consider that it comes from the pen of one of the foremost and busiest specialists in Russia, who is also a prolific author, our admiration for the power to work that the writer possesses knows no bounds. He promises in a future work the conclusions and classifications to be deduced from a study of the collected cases. The author has laid every writer in the future on this subject under a deep debt of obligation, for the

production will at once form a standard reference for all that has hitherto been published on the subject. The fifth and last section is devoted to a short description of the cases—seventy-two in number—coming under the author's own observation. This is a particularly rich and, we may say, unique experience. The work, for such we must term it, is a most valuable contribution to the science of acquired and congenital stenoses of the vagina and congenital absence of the same. It will doubtless be the means of stimulating more observations in that direction. No gynæcologist can afford not to have it in his library. (VINEBERG.)

## TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

Stated Meeting, March 20, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

### EXHIBITION OF SPECIMENS.

#### *Fibroid Tumor of the Uterus with Double Pyosalpinx.*

Dr. FRANKLIN H. MARTIN: I have here a uterine fibroid that was removed within the last six weeks, and present the specimen for the purpose of illustrating a point in drainage which I brought up at the last meeting. The patient from whom this tumor was removed gave a history of abdominal swelling for ten years. Three weeks previous to my seeing her she had what was called an attack of peritonitis. The physician who brought the patient to me suspected pregnancy. After a thorough examination I decided to make an exploratory incision, with the idea that the case was one of fibroid tumor, complicated, possibly, with pyosalpinx, the result of specific infection. Upon opening the abdomen I came upon two large pus tubes which were fixed well above the pelvic mass. The latter seemed like a fibroid tumor. The pus sacs were not adherent; that is, infection had not extended from them to the parietal peritonæum. On coming down upon the uterus, below the pus tubes, I found a mass completely buried in omentum and intestine. I began the delivery of this tumor, after grasping it with a strong volsella forceps, and upon examination posterior to the tumor found that the peritonæum had been lifted fully two or three inches by the tumor in the *cul-de-sac*.



I severed the peritonæum at the point of deflection, and then by traction gradually enucleated the growth from its bed and delivered it. The broad ligaments were then tied off. A large surface was left in the *cul-de-sac* uncovered with peritonæum. As the peritonæum was deflected so high, I filled the cavity with iodoform gauze and brought a piece of it out in front of the cervix, between it and the bladder, and left the packing in the posterior *cul-de-sac*. I then attached the deflected peritonæum behind to the bladder peritonæum in front of the uterus with a continuous catgut suture, leaving a large cavity beneath which necessitated drainage. This closed the peritoneal cavity, and the drainage was consequently subperitoneal. The patient recovered without an untoward symptom.

#### *Uterine Fibroid.*

The next specimen is also a uterine fibroid. The patient gave a history of menorrhagia and pain. She was operated upon February 8, 1896, at the Woman's Hospital. The tumor was similar in its development to the one already shown. It was an intramural fibroid with a single center of development in the posterior wall of the uterus. The tumor developed low in the cervix and had lifted the peritonæum, as in the preceding case. I also had in this case a large raw surface, as the peritonæum had been elevated in the posterior *cul-de-sac*. I treated this case in exactly the same way as the preceding one, filled the cavity with iodoform gauze, and brought a strip out between the cervix and bladder and down into the vagina. Drainage was subperitoneal. The gauze was removed at the end of forty-eight hours. In both cases the discharge was free enough to warrant drainage.

#### *Metritic Uterus.*

The next case is not unusual, but is interesting. Patient gave a history of menorrhagia. One year ago I operated on the woman, and removed by abdominal section a pelvis full of pus sacs, which I enucleated from the universally adherent peritonæum. The operation was difficult. There was a history of specific infection. I did a thorough operation in this case, removed all the pus sacs down to the horns of the uterus, and at the same time curetted thoroughly. The patient left the hospital in five weeks. After leaving the hospital the menorrhagia, however, continued each month. I resorted to all kinds of treatment to stop these hæmorrhages, but failed, and at the end of a year advised her to have the uterus removed. I accordingly removed the uterus by the vagina at the Woman's Hospital, February 27th.

She left the hospital a month thereafter in much better condition than I had ever seen her.

This case argues removal of the uterus in all cases of bilateral disease of the appendages—a procedure I now almost invariably resort to, especially where the uterus is metritic.

*A Dislocated Meckel's Diverticulum.*

DR. BYRON ROBINSON: I have here a rare specimen—a dislocated Meckel's diverticulum, removed during an autopsy on a man forty-eight years of age. The mass consists of the urachus, remnants of the hypogastric arteries, and the top of the bladder. I obtained this specimen through the courtesy of Dr. Beasley, an interne of the Cook County Hospital, who allowed me to make the post-mortem examination. On opening the abdomen in the median line, a fine strand of tissue to the left of the umbilicus presented itself, which proved to be a Meckel's diverticulum. The urachus was dissected out. It was about an inch and a half long. I have not seen exactly such a condition before, and I have observed over five hundred autopsies. Meckel's diverticulum is generally located about five feet from the ileo-cæcal valve, but in this case it was located about fifteen inches from it. The specimen shows that there had been an arrest of development through some inflammatory process, and the inflammation probably started at the lower end of the omphalo-mesenteric ducts which are attached to the small intestine. This obliterated part of the duct detached it from the ventral surface of the intestine, but did not entirely obliterate the omphalo-mesenteric duct. The peritonæum showed no signs of any inflammatory process, and the mesentery of the diverticulum extended from the omphalo-mesenteric duct to the ventral side of the intestine. In three hundred and fifty post-mortem examinations which I have made, I have seen Meckel's diverticulum only about seven times, and in the practice of other physicians I have seen it about five times. The dislocation occurred about two inches from the ventral surface of the gut, which was not strangulated.

Meckel's diverticulum is found about twice in every hundred cases. It is occasionally the seat of disease. I know of one case where it contained a calculus about two inches long. The stone fell out of the diverticulum and became lodged in the small intestine. An operation was performed for the removal of the stone; the intestine was gangrenous; the stone was extracted from the ileum; sepsis followed, and the woman died.

This diverticulum is eight inches long. It extended from the right face of the mesentery to the umbilicus, and was closely bound for three inches to the urachal remains.

#### DISCUSSION.

Dr. HENRY P. NEWMAN: I would ask Dr. Martin why he brought the drain out in front of the uterus, between the cervix and bladder, instead of behind to the stump, which would seem to afford more perfect drainage.

Dr. T. J. BINKLEY, JR.: The question asked by Dr. Newman also occurred to me—Why did Dr. Martin not establish drainage from the lowest point? I can not understand how enormous pus tubes could exist without causing some adhesions in the case reported. I do not see how a fold of peritonæum could cover the adhesions which would ordinarily exist laterally in the fossa, and I should think the doctor would have occasion to drain the peritoneal cavity. I have recently had several cases of pyosalpinx in which the adhesions in the fossa were low down on either side, and were so extensive that there was no possibility of covering the territory with peritonæum; and if one makes drainage from below, an opening must be left through the peritonæum. In these cases I always make an opening through the posterior *cul-de-sac*.

Dr. FRANKLIN H. MARTIN: The reason I drained in front of the bladder was because the cervix had been cut short, and in making the toilet of the stump I had separated it down to the vagina in front, expecting to use capillary drainage.

The tubes themselves were free, and the peritonæum was lifted posterior to the *cul-de-sac*. The tumor had grown beneath the peritonæum, and had lifted it so high on the posterior surface of the tumor that at the point of severance I left nothing above that point adherent, and there were no surfaces from which adhesions had been separated above that point. The bleeding points and the uncovered portion were subperitoneal, and after covering them I felt there would be a space left beneath in which adhesions between the peritonæum and parietal wall could not occur, but a space in which fluids would accumulate, and consequently I filled it with iodoform gauze for drainage.

*A Case of Ectopic Pregnancy operated upon by the Vaginal Method.*

BY GEORGE WILLIAM REYNOLDS, M. D.

(See page 598.)

Dr. Reynolds also exhibited a specimen.

*A Case of Ectopic Pregnancy.*

BY CHARLES N. SMITH, M. D., TOLEDO, OHIO (by invitation).

(See page 601.)

## DISCUSSION.

Dr. C. S. BACON: In Berlin last year I had the opportunity of hearing a report of two cases of extra-uterine pregnancy operated upon by the vaginal method. The operation by the vaginal method seems to have received considerable stimulus through the success of the vaginal operation for fixation of the uterus. The technique that has been developed by this operation has certainly been of great value, notwithstanding the fact that the operation of vaginal fixation of the uterus has proved unsatisfactory. As you doubtless know, recent reports of cases of dystocia following vaginal fixation of the uterus have from a practical standpoint absolutely condemned this operation—at least, the method that has been heretofore employed. The greatly improved technique of the vaginal operation has certainly been productive of very much good in increasing the number of operations that were previously done wholly by laparotomy. I presume that there is no question as to the desirability of the vaginal operation in suitable cases, on account of the absence of danger of ventral hernia. The drainage is also better, and there is nothing in the character of the operation for tubal pregnancy during the first three months that makes the vaginal method inappropriate. In one case I heard reported in Berlin the patient was up and about in one week after the operation was performed. That certainly was a better result than could have been obtained by a laparotomy. In the future I believe that the vaginal operation will be performed much more frequently for this pathological condition.

It is interesting that we have had reported to-night two cases of extra-uterine pregnancy occurring in primiparæ, and, so far as I can judge from the first case, the woman was healthy. As the extra-uterine pregnancy is supposed to be dependent upon previous inflammation of the tubes and uterus, where it occurs in an apparently healthy woman who has never borne children the question of ætiology is interesting. In the second case, where gonorrhœa had previously existed, there was undoubtedly an inflammatory condition of the tubes, with probable loss of movement in the epithelial cilia, which would agree with the diseased condition so commonly found in such cases.

In regard to the point made by the last speaker (Dr. Smith)—that in all cases of intraperitoneal hæmorrhage operation should be made—I should suppose, from what I have seen, that the statement is nearly in accord with the present condition of gynæcology. If the condition can be diagnosed before hæmorrhage occurs, the operation can be done under the best possible chances for success, and future dangers averted. If hæmorrhage has occurred, we can not make a diagnosis between rupture of the tube and tubal abortion. In the latter case, when the abortion is complete there is less danger in conservative treatment, but, unfortunately, the diagnosis between a complete tubal abortion and an incomplete abortion or a rupture of the tube is, and must always be, uncertain. Hence the part of safety seems to lie in operating.

The frequency of these cases was rather strikingly brought to my notice by the reports of Prof. Zweifel of his operations last year. If I remember correctly, one sixth of the laparotomies (twenty-four in all) were for extra-uterine pregnancy. I found, on looking up the statistics in Chicago for many years back, that only rarely was extra-uterine pregnancy reported as the cause of death. In some years there were no deaths reported from this cause. Undoubtedly, this was due to a failure in diagnosis. When all serious cases of hæmatocele are proved to be extra-uterine pregnancies, the cases will be found much more frequent than we formerly supposed, and the practical importance of the subject will be greatly enhanced, as indeed has been the case during the last few years.

DR. BYRON ROBINSON: The fact that neither of the cases reported was diagnosed before operation does not indicate that vaginal hysterectomy is the operation of election for ectopic pregnancy.

I do not believe that every case of tubal abortion requires operation. I have operated on about twenty cases of ectopic pregnancy, but was unable to make the diagnosis prior to operation in more than one half of them. I protest against the proposition of Dr. Smith to operate every case in which a suspicion of a tubal abortion exists, because if this were done many unnecessary operations would be performed. Many young girls are quite sick during menstruation, with rise in temperature and acceleration of pulse as the result, undoubtedly, of escape of some infectious material or blood from the end of the tube. It is impossible to diagnose a small amount of fluid blood in the pelvis of a woman who is the subject of tubal abortion, but after it becomes solidified there are only a few physicians who would not suggest operation, particularly if the mass were as large as an orange.



No doubt there are cases in which hæmorrhages occur from the end of the tube that do not require treatment. While making post-mortem examinations in the Cook County Hospital, cases of ectopic pregnancy with a fœtus as large as a small apple are occasionally found, in which death occurred from some intercurrent disease, such as typhoid fever or pneumonia.

The history of Dr. Smith's case states that the patient had had gonorrhœa. I do not know of ectopic pregnancy ever having occurred in a healthy woman. Dr. Byford operated on a case for some other pathological process in which two embryos were found.

Dr. FERNAND HENROTIN : I wish to place myself on record as an advocate of the abdominal operation for ectopic pregnancy. I believe, however, that cases showing signs of suppuration and sepsis can be better operated upon through the vagina than through the abdomen, but non-infected cases of ectopic pregnancy can be very easily and safely operated through an abdominal incision. Many patients have been operated for ectopic pregnancy by the removal of one of the appendages, and have afterward become pregnant. The vaginal operation is frequently difficult to do, and one is apt to do more damage by this than by the abdominal route. It is pretty well known that I favor the vaginal route of operation for many pelvic diseases, but for a reasonable proportion of cases of ectopic pregnancy I prefer the abdominal operation. I believe that ectopic pregnancies are much more frequent than we formerly supposed, and the rupture of an ectopic pregnancy into the broad ligament, so far as my experience goes, is much more common than is generally believed. It is true that some of the patients have got well without operation—that is, they gave every appearance of hæmorrhage proceeding from the uterus, and, from the peculiarities of menstruation and the symptoms of the patient, gave the typical signs of ectopic pregnancy, followed by rupture, and afterward by various symptoms not sufficiently severe, however, to call for operative interference. I have watched a number of such patients with hæmatocoele, and know that a number of them recover without operation, although there are cases with symptoms sufficiently grave to necessitate operation.

I believe the extra-uterine pregnancies that give rise to those alarming hæmorrhages that carry off the patients in a few hours are almost always early—five to seven weeks' pregnancies. I should like to hear from other Fellows in regard to this point.

Dr. HENRY B. STEHMAN : I would like to add to the case reported by Dr. Reynolds one in which I operated very successfully by the vaginal route.

Instead of a ligature I used the clamp, packing iodoform gauze around it and in the pelvis to arrest hæmorrhage.

In the majority of cases ectopic gestation is of tubal origin, and if the ovum becomes impregnated near the fimbriæ and the tube is not adherent or the uterus retroflexed, the impregnated tube drops into the *cul-de-sac*. In the early weeks, where this condition exists, it seems to me that in the absence of peritonitis the vaginal route would seem quite desirable.

Dr. HENRY P. NEWMAN: There is one objection that I have to the vaginal route in ectopic pregnancy. The great liability of implication of other organs has been hinted at, but not brought out very forcibly. As has been stated, we rarely, if ever, have ectopic pregnancy in a healthy woman. Usually there is septic tubal disease. Consequently the vaginal route does not in all instances afford as good opportunity to recognize and deal intelligently with the complications as the abdominal or as the combined method. In a recent case I had a most admirable and prompt recovery from an ectopic pregnancy operated on through the vagina, the patient leaving the hospital at the end of two weeks, while in another case the result was less satisfactory. I did not wish to operate through the vagina in the latter case, but the friends of the patient positively refused a cœliotomy. Against my judgment the vaginal route was selected. There was evident involvement of the tube on the opposite side, or complications which were surmised at the time but not accurately made out. Following partial recovery the patient had an attack of recurrent peritonitis, and is not well at the present time. Cases will unquestionably be met with in which we may perhaps relieve the immediate danger but will not cure the patients. When an operation of this character is required, it can frequently be done better through the abdomen, and all complications removed there and then.

Another objection to the vaginal operation is inability in some instances to control hæmorrhage. Ordinarily, the tying of the main arterial branches and the application of a firm tampon will accomplish this, but it is not always reliable. The collateral circulation may be great, and there may be adhesions and distortions as well as displacements of the organs, but we can not reach these anatomical and pathological defects as readily by the vaginal as by the abdominal route. We should be governed by all these considerations in the selection of our method of operating.

Dr. T. J. WATKINS: I hope the Society will pardon me if I relate my experience with the vaginal operation for tubal pregnancy, as I

have made a number of these operations. I have recently operated on a patient who had had an abdomino-tubal abortion. The probable diagnosis, however, before operation, was a small ovarian cyst. The tube, with the ovary attached, was very easily removed through a T-shaped incision in the posterior fornix. The pedicle was secured by a single forceps, the wound packed with gauze; the forceps and gauze were removed at the end of thirty-six hours. The patient was up at the end of eight days, and left the hospital feeling perfectly well at the end of two weeks. Dr. Emil Ries made a careful microscopical examination of the scrapings from the uterus, and did not find any decidual cells. He also made sections of the tube without finding any decidua. The distal end of the tube was dilated so that I introduced my index finger into it for a distance of about two inches. The tube was surrounded by about four ounces of clotted blood, and was apparently empty. The probabilities are that the entire decidua had been expelled from the uterus, and that Dr. Ries may not have examined the portions of the tube which contained decidua, or that it may have been also expelled. The patient had menstruated regularly, but the "menstruation," which occurred about four weeks previous to operation, was profuse, protracted, and attended by very severe pain.

A second interesting case was that of a patient with a tumor which extended up nearly to the umbilicus and down between the rectum and vagina. She gave a history of extra-uterine pregnancy, and had a temperature of  $103^{\circ}$ , with a rapid and feeble pulse. She was not able to be taken to the hospital, and her condition did not seem to justify abdominal section. A vaginal incision was made, and about two quarts of clotted blood were removed. An enlarged Fallopian tube was found at the upper part of the tumor, which was opened with the finger, and seven drachms of placental tissue scraped out. There was some hæmorrhage, which was controlled with gauze packing. The gauze was removed at the end of forty-eight hours, and double drainage-tubes inserted for drainage and irrigation. The patient made a somewhat tedious but very satisfactory recovery.

During the last eighteen months I have operated on six other cases of extra-uterine pregnancy by the vaginal route, and in each of them there was a large hæmatocele. In two or three of the cases the diagnosis was proved by scrapings from the uterus, and in some a thickened tube could be felt upon bimanual palpation with one or two fingers in the sac and the other hand over the abdomen. All of the patients recovered, although nearly all of them had an elevation

of temperature before the operation. One patient was badly infected by frequent curettage for suspected retained portions of placenta.

The selection of the route of operation should, I believe, be determined in each individual case. When rupture has taken place into the broad ligament, the vaginal route is undoubtedly preferable. A diagnosis of rupture into the broad ligament or general peritoneal cavity can frequently be made by the distance the tumor extends downward. If the tumor extends some distance between the rectum and vagina, it is probably extraperitoneal; if it is intraperitoneal, the tumor will not extend below the point where the peritonæum is reflected from the rectum to the uterus.

Dr. J. T. BINKLEY: The discussion has resolved itself largely into reports of personal experience. I have listened to the papers with a great deal of interest, and was very much pleased to hear the report of the case of Prof. Smith.

I want to refer to the remarks made by Dr. Robinson—"that many cases operated upon need not be." He does not believe in "indiscriminate" operations. I wish to say that if the case of double ectopic pregnancy which he reports had been operated upon earlier, the woman would probably have been spared years of suffering. In this case there was ectopic pregnancy on both sides. The woman had been an invalid for years, had paroxysms of pain and all the symptoms of pregnancy of this character while under the care of the elder Dr. Byford, and was treated for weeks for peritonitis. Following this acute attack, the patient went about, but it was necessary to seek the advice and aid of a gynecologist from time to time until about two years later, when there was a recurrence of the peritonitis. She rallied again, was around still under the care of a gynecologist for a year or so, when her condition grew so bad that I was called to see her. I found a large fluctuating mass on either side of the uterus, and advised an operation, which was performed by Dr. H. T. Byford, who found double tubal pregnancy in both tubes. The fœtuses were almost wholly destroyed by maceration. Ossification had developed to such an extent that the long bones, the ribs, and the skull were present in the mass on either side.

Dr. Henrotin has asked our experience regarding the extent of hæmorrhage in early cases. I know of three or four cases. One was operated upon by Dr. Van Hoosen; the pregnancy was so recent that the ovum was discovered only by accident, with very extensive hæmorrhage into the abdomen. I have had a similar experience. The patient fell in church on Sunday morning not long ago, was

brought directly to the Chicago Hospital, operated on, and the interne discovered the ovum in the mass, which was removed by washing it out over a wire netting.

Dr. HENROTIN : How far advanced ?

Dr. BINKLEY : Evidently not more than four or five weeks. I can not understand, in the case reported by Dr. Stehman, how he can tampon the abdominal cavity with any degree of satisfaction. There is not enough resistance to hold the tampon down against the bleeding surface. You may put in styptic gauze, but I do not see how any one can efficiently tampon the abdominal cavity for hæmorrhage. It seems to me better to make the operation through the abdomen, so that the field of operation is in view, for I have seen blood clots as large as my fist displaced five or six inches from the seat of hæmorrhage.

Dr. E. C. DUDLEY : I recall three cases of undoubted pelvic hæmatocele in which operations were contra-indicated by the extremely low condition of the patient. One had just been delivered at term. Hæmatocele in this case, therefore, could not have been due to extra-uterine pregnancy. The other two cases were undoubtedly from ruptured extra-uterine pregnancy. In these two cases preparations were made for operation, and I waited until the patients should rally sufficiently to permit cœliotomy. Both patients recovered, however, without operation. I examined one last week and could scarcely find any trace of disease about the uterus.

Dr. Henrotin's division of cases into septic and non-septic undoubtedly has some bearing upon the question of route, whether it should be vaginal or abdominal. It is not, however, always possible before the operation to distinguish the septic from the non-septic cases. I think we may follow the same rule which applies to the removal of pus tubes. The vaginal route is desirable when the tumor is accessible—that is, low down and easily reached. When it rises up in the pelvis and is not easily reached, then, as in the case of high pus tubes, the abdominal route is desirable. In the vaginal operation the ovarian arteries are not accessible, and there is consequently greater danger from hæmorrhage. The uterine arteries, however, are often more easily reached by the vaginal than by the abdominal route, and their ligation would doubtless have considerable influence in controlling hæmorrhage. The shutting off of the uterine arteries, as well as the ovarian arteries, will doubtless form at least an important part of the technique in the vaginal operation.

Dr. M. L. HARRIS : The abdominal and vaginal operations for ex-



tra-uterine pregnancy have been performed sufficiently often to enable rules to be formulated as to the selection of the route of operation. The vaginal operation has now been performed in hundreds of cases by different operators, especially by Herman, Kossmann, Péan, Schauta, Dührssen, Martin, and Schroeder, so that we should be able to lay down some rules from their experience as to the better method to pursue in a given case. Schauta had forty per cent. mortality by the vaginal route. Of sixteen patients operated upon by him *per vaginam*, six died, and this is too high a mortality for this method. Vullier was obliged to abandon the vaginal operation on account of the difficulties encountered. Martin, with an experience of fifty-six vaginal operations for extra-uterine pregnancy, concludes that the abdominal route is by far preferable, and believes it should always be selected unless there are special reasons for adopting the vaginal method. The rules which he formulated for selecting the vaginal route are: 1. That no case in which the mass is larger than the fist should be removed through the vagina. 2. That no operation should be attempted through the vagina in which the mass is fixed to the wall of the pelvis by involving the infundibulo-pelvic ligament. He has encountered extreme difficulty in operating through the vagina for this condition and has had serious results. It is necessary, in these operations, to control not the uterine, but the ovarian artery. The danger of hæmorrhage comes from the ovarian artery, and in any case in which the mass is fixed to the wall of the pelvis, any operation which does not admit of free access to the ovarian artery should be looked upon as extremely dangerous. Consequently he says that in all such cases we should operate through the abdomen. These are the only rules which have been laid down from experience to guide us, but it seems to me they are very important, and Martin's experience of fifty-six cases is sufficient to enable one to form an opinion as to the better method to select.

Dr. G. W. REYNOLDS (closing): The patient had visited from time to time several distinguished gynæcologists in this city, who made the same diagnosis that I did. I do not believe that any one could have made a correct diagnosis in this case.

It is our duty to operate in every case of ectopic pregnancy, on account of the great dangers attending this condition if the patient is allowed to go without operation. When the rupture takes place between the folds of the broad ligament and is extraperitoneal, as in this case, the fatty tissue will become absorbed and the bones of the

fœtus remain; consequently rupture into the rectum or bladder may subsequently take place, or, if pregnancy should again occur, it would interfere with delivery, or perhaps be the cause of miscarriage or fatal sepsis.

In regard to the dangers of the vaginal route, in cases where we can reach the mass as readily as I did in this case, I think they are much less than in abdominal section. If the tumor had been a subserous myoma, I am satisfied I could have removed it much more easily and with less danger through the vagina than through an abdominal incision, as the uterus moved with the tumor.

Hæmorrhage is the great bugbear in all cases of ectopic pregnancy, whether the operation be vaginal or abdominal. In cases where a profuse hæmorrhage with syncope or collapse occurs, the rupture takes place near the fimbriated end of the tube. In cases of rupture near the base of the tube the escape is into the folds of the broad ligament, as in this case.

I would advocate the vaginal route only in exceptional cases. I prefer the abdominal route in the majority of cases, because the rupture ordinarily takes place into the free peritoneal cavity. Abdominal section is certainly indicated when the hæmorrhage is intraperitoneal. The vaginal method may be resorted to when the hæmorrhage is extraperitoneal.

Dr. CHARLES N. SMITH (closing) : There seems to be a misunderstanding on the part of one of the gentlemen as to the route which I employed in operating on the case reported. I did not go through the vagina in my operation, but did a cœliotomy; nor would I favor the vaginal route in those cases where the hæmorrhage is intraperitoneal. I tried that route once, but do not want a similar experience, as my patient nearly bled to death before I could control the hæmorrhage. It was only by opening the abdomen that I was able to secure the bleeding vessels.

I did not advise, as presumed by Dr. Robinson, operation in every case of tubal abortion. On the other hand, I distinctly stated that when the hæmorrhage was slight and the abortion complete, under which circumstances the hæmorrhage is not liable to recur, absorption of both blood and ovum might take place. Further, I stated that hæmorrhage might occur into the ovum, causing its death and rendering it apoplectic, yet neither dislodging the ovum from the tube nor causing a hæmatocele, and that in such cases absorption might follow.

What I did advise was operation in every case of intraperitoneal

hæmorrhage. It is begging the question to ask if operation is to be performed when the hæmorrhage is limited to but a few drops. No one could diagnose such a hæmorrhage. A hæmorrhage of such severity as to produce symptoms and signs sufficient for diagnosis should be met by operation.

I would like to know the life history of the patient at the County Hospital who died of typhoid fever, with a large apoplectic ovum sepultured within the tube. I would like to know of the weeks, months, or possibly years of suffering experienced by that woman. Much of interest in that case could be learned outside the dead-house. It would, in all probability, prove to be a counterpart of the case upon which Dr. Binkley has shed so much valuable light.

On motion of Dr. Henrotin, the thanks of the Society were extended to Dr. Smith for the report of his interesting case.

The following resolutions were presented and unanimously adopted :

Inasmuch as Divine Providence has removed from our midst our late Fellow and President,

WILLIAM WRIGHT JAGGARD,

*Be it Resolved*, That we, the members of the Chicago Gynæcological Society, desire to place on record our deep appreciation of our deceased Fellow, recognizing in him a man of tenacity of purpose, brusque but kind withal, conscientious in his work, a logical thinker, an obstetrician of brilliant attainments, a teacher of the highest type, a debater without an equal, a man with all the mental accomplishments of years of hard study always at his command—a genius ;

*Resolved*, That we desire to express to his family our grief at his untimely death, which we deeply deplore ;

*Resolved*, That a copy of these resolutions be forwarded to his nearest relatives, and a copy be spread upon our minutes.

E. J. DOERING, *Committee*.

Adjourned.

Official Transactions.

T. J. WATKINS, *Editor*.

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## TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, February 18, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.*What is the Best Method of making and of closing the Caeliotomy Incision?*

BY GEORGE M. EDEBOHLS, M. D.

(See page 561.)

## DISCUSSION.

Dr. HORACE TRACY HANKS thought the paper dealt with a very important subject—one which was more important than the younger cœliotomists were apt to suppose. Those of us who have been operating for a number of years find patients returning occasionally suffering with hernia. He had been studying the reasons for the accident methodically for the past five years at least.

He used the silkworm-gut through-and-through sutures, accurately approximating the fascia or sheath of the muscle while tightening the suture. With regard to the median incision, in view of the fact that it was almost impossible for the most skilled surgeon to strike exactly the median line, especially when the wall was thick, thus making it impossible to bring like tissues together when closing the wound, he had made it a practice, for at least three years, to cut directly through the muscle, either on the right or left side. During these three years he had taken special pains to make exact approximation of like tissues, and as he almost never drained through the abdomen now, he felt convinced that as a result there would not be a single case of hernia, whereas ten years ago he might have had ten per cent. of these accidents. In order to secure exact approximation of the parts he had had his assistants hold the sheath of the muscle with two tenacula while he tightened the through-and-through sutures. Recently, however, he had practiced what he considered a better method in all cases where the wounds were less than four inches. He introduced a temporary running suture of silkworm gut through the edges of the sheath and peritonæum on the two sides, so that when the two ends

of the catgut were drawn taut, these edges would be accurately approximated. He then tightened and tied the permanent through-and-through sutures of silkworm gut, while the running silkworm-gut suture was held taut.

Later, after all through-and-through sutures had been duly tied, the temporary longitudinal suture was easily drawn cut.

In his last case the incision was a long one, extending up to the manubrium, and he used a continuous suture of chromicized catgut quite similar to this one. Some of his friends had asked him, Why not leave the temporary suture? It could be left, of course, but the through-and-through silkworm-gut sutures were all-sufficient, if each layer was in exact apposition. The objection was the possibility of strangulation of the tissues and stitchhole abscesses when too many sutures were introduced and left. He fully agreed with Dr. Edebohls that buried silkworm gut was a foreign body as long as it remained in the tissues, and it sometimes gave patients considerable annoyance long after the operation. With due respect to Dr. Marcy, he believed that one could do anything with catgut which could be done with kangaroo tendon, and do it as well and as safely. If all surgeons in New York city alone were to use only the kangaroo tendon the supply would be exhausted in a few days. Catgut was sufficiently strong, and if prepared as Dr. Edebohls had described, or by dry sterilizing, as he had practiced for four years, it could be rendered perfectly aseptic, and would resist absorption as long as was ever required.

Dr. MALCOLM McLEAN had used buried silkworm gut in only one case, shortly after it had first been recommended by Dr. Edebohls, and as it produced suppuration he did not use it again. Dr. Edebohls had come to discard it for the same reason.

Regarding the method of closing the wound, he was not ready to abandon the method which he had always used—that of passing through-and-through sutures, including adipose tissue and skin. It was only in cases in which he had recognized some fault in his technique, or where he had been compelled to employ drainage, that he had had any trouble, such as subsequent hernia. He was very particular in bringing the fascia together, and employed the same method as Dr. Edebohls, except the duplicate suture.

In closing the cœliotomy wound, if it were a long one he invariably inserted some silver-wire sutures—say every other one of silver wire, the others of silkworm gut. For the prevention of hernia all depended upon approximating fascia to fascia and muscle to muscle, and avoiding suppuration and drainage where possible. He had long



ago ceased to put in an independent row of sutures into the peritonæum. He avoided bruising the fat, did not use many sutures here, but followed a method which was a kind of compromise with the open one of Dr. Pryor, whereby the external wound was made to granulate.

Dr. J. R. NILSEN confessed to having nothing specially new to say upon this subject. He had seen Dr. Edebohls operate several weeks ago, and took occasion to compliment him on his manner of closing the wound, provided the catgut was just right. Personally, he had used only the old method, which he had employed when he began operating, and had been singularly free from hernia. He used through-and-through sutures of silkworm gut, and took especial care in approximating the fascial edges. The incision was through the linea alba. Recently he had tried kangaroo tendon for the fascia in three cases. The first patient was the fattest one he had ever operated upon, but the union was primary and perfect. The second case was equally successful, but in the third one, not in a fat patient, there was the worst suppuration which he had ever encountered. In this instance, however, he had been compelled to break up extensive old adhesions, which were evidently the result of a former appendicitis, and, although the strictest antiseptic precautions were observed, septic matter may have been liberated by breaking up these adhesions and the tendon really not to blame.

Dr. Nilsen said he might adopt the method described by Dr. Edebohls if he could trust the catgut implicitly, but this material had disappointed him on two or three occasions in plastic operations.

Dr. HERMAN L. COLLYER said it appeared to him, on looking over past work in closing the abdominal wound, that hernia had been due chiefly to selecting the median line for the incision. He had come to choose the muscular wall in preference to the median line because the fascia in the latter did not give as good a scar. In his opinion, silkworm gut was the most aseptic material, excepting silver wire, and he rejected the latter because of its unhandiness and the length of time which it required to bring the sutures together. As all knew, very few hernias occurred through the muscular coat, and he thought the method described by Dr. Edebohls would leave a scar of great strength. Where failure had occurred it had probably been due to bringing fascia up between the muscular coats, which was a slovenly way of closing the wound. Dr. Collyer used, in addition to buried silkworm-gut sutures, through-and-through suture. There was an objection to buried silkworm gut in some patients, as they

complained afterward, while others did not. He had been strongly impressed with Dr. Edebohls' manner of preparing chromicized catgut, and while the method might be somewhat difficult, he thought there could be no doubt of the reliability of the suture material.

The PRESIDENT said that he had been greatly interested in the paper because, like a number of others, he had been induced by Dr. Edebohls' high authority to use buried silkworm-gut sutures, and, in spite of a few cases of suppuration, he had persisted in its use and had obtained in general good results. There had been no instance of hernia. In one case of ventral fixation a series of abscesses developed throughout a year, but without vitiating the results of the operation. When the subject had been first presented he had wondered why trouble did not frequently arise from buried sutures, yet he had observed Howard Kelly use the buried-wire suture to coaptate the edges of the fascia, apparently without any untoward results. Judging from Dr. Edebohls' present paper, it would seem that chromicized catgut ought to be the best suture material, but those who had had bad results with catgut prepared in hospitals were apt to be rather backward in using it. His personal experience with the through-and-through suture had been very favorable, many patients having been kept under observation for months and years, in order to test the permanent results. Formerly, surgeons introduced too many sutures in closing the edges of the skin. It was better to introduce them farther apart, for union by granulation gave a stronger cicatrix, especially in the case of long incisions in fat patients.

Dr. HANKS said a simple and efficient plan for sterilizing catgut was the method which he had practiced for four years. He boiled good gut in absolute alcohol for two hours on two different days. He placed the bottles containing the alcohol and the catgut, the bottles being loosely corked, in the compartment of the sterilizer, with the cotton and towels which were to be dry-sterilized, and kept them at the necessary degree of heat for two hours; then with clean hands he wound the gut on glass spools, and kept them in a tin box without any alcohol, but quite surrounded with cotton. To prepare for an operation, he placed this box containing the spools of catgut and the cotton in the dry compartment of the sterilizer, and kept them there for an hour at the required temperature. He liked Dr. Edebohls' method, and should give it a fair trial, believing it to be the best method described.

Dr. EDEBOHLS remarked that freedom from hernia depended, as several of the speakers had said, upon nice approximation of fascia to

fascia and muscle to muscle, however this might be obtained. The method which he had described commended itself as a simple and quick one. Dr. Nilsen had asked him where catgut could be obtained which had been prepared in the manner described in his paper. He preferred not to rely upon others, but had personally prepared and sterilized all the catgut he had ever used. He did this as a matter of safety and conscience. Enough was prepared at one time to answer his needs for a year. He had used dry sterilization for two years, but catgut so sterilized was less reliable as to strength. There were other methods of preparing and of sterilizing catgut for surgical use, and simpler ones than that which he had described, but he *knew* the latter to be entirely reliable.

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Stated Meeting, March 3, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.

CLINICAL MEETING.

*Tubal Abortion ; Vaginal Hysterectomy.*

The *PRESIDENT* presented a specimen of tubal abortion and a uterus removed four weeks before through the vagina. He was called to the case one evening, when he learned that the patient, aged thirty-seven, had always been well, with the exception of pelvic peritonitis following an abortion six years before, which left her without local symptoms. She had missed her period in January, apparently from taking cold, and a few days later had cramps and an irregular flow. After that she felt quite well until the night before his visit, when she was seized with severe colicky pains in the abdomen, for which morphine was given. On examination, the reporter felt a boggy mass in the *cul-de-sac*, which confirmed his suspicion of ectopic gestation. The uterus was enlarged and softened. Pulse, 100 to 110; temperature, 99.5°. The symptoms pointed to rupture of the sac. She was sent to the hospital, where he operated the next morning, removing the entire mass, including the uterus and appendages, through the vagina. The tumor was easily accessible through the posterior *cul-de-sac*, the adhesions being general but slight. He was led to remove the uterus chiefly because of the obstinate hæmorrhage, but also on account of disease of the opposite tube and ovary. Clamps were used. The

patient was up in two weeks and went out at the end of three weeks, convalescence being entirely afebrile.

A complete pseudo-decidual cast was removed by curettage (shown at the same time).

The case was interesting in two respects: 1. Diagnosis, for the condition had not been suspected until he was called. 2. The ease with which the mass was reached and removed through the vagina. In cases in which the tube is situated low in the posterior *cul-de-sac* it is an easy matter to operate through the vagina, and the patient is more likely to submit to immediate interference than if *cœliotomy* were proposed, from which she might shrink until it was too late.

#### DISCUSSION.

Dr. FRANCIS FOERSTER said he had operated upon a case of ectopic gestation at the German Hospital two days ago in which the symptoms had been somewhat obscure. The patient had had colicky pains about five months before, lasting a few days, and shortly before that there had been irregularity of the menses. Dr. Foerster found some colostrum in the mammary glands. These were about the only signs of gestation, but he concluded that the woman was suffering from the results of rupture of an ectopic gestation sac five months ago. On examination, he felt a mass in the *cul-de-sac* of doughy feel, and he believed it could have been removed easily through posterior incision, but experience in a former case had led him to look upon this method of operating in ectopic pregnancy with a feeling of distrust. In the former case he loosened the organized blood clot after using a little force, and it was followed by continuous trickling of blood, compelling him to open the abdomen and secure the vessels from above. He observed that Dr. Coe had got out of the difficulty by removing the uterus, which was easy to do under the circumstances. Since his experience in the case mentioned, Dr. Foerster preferred to operate in extra-uterine pregnancy by laparotomy. In his recent case the denudations after freeing the blood clot were so extensive that he had to pack with gauze in order to control bleeding. He concluded by expressing the opinion that, when one had reason to think the clots were old and had taken on considerable vitality, it was safer to enter from above.

Dr. BACHE MCE. EMMET would prefer to operate from above if rupture had taken place some time before, giving time for the blood clot to become vitalized. He could secure a cleaner cavity by seeing it. If rupture had not taken place, there would be no such point to

consider, and the temptation was strong to enter by the vaginal route.

The PRESIDENT said that in another case the patient was seen by him about twelve hours before rupture occurred, and the distended tube was easily felt in Douglas' pouch, but he delayed operation until after the rupture in deference to the wishes of the attendant, and then it was too late. In that instance it was not unlikely that the family would have consented to an immediate operation had the vaginal one been proposed.

*Uterine Fibroids complicating Pregnancy ; Hysterectomy.*

Dr. BACHE MCE. EMMET presented a tumor consisting of the uterus containing the foetus and amniotic sac and fluid, and two fibroids larger than the two fists projecting in opposite directions from the walls of the uterus. The woman had been married five months and had missed only two periods. The uterus was about the size of the organ between the second and third months of gestation ; the two masses springing from it were felt to be nearly as large, had given rise to attacks of pain, and seemed to be growing, while other small nodules were also seemingly sprouting forth. Before operating he had been given the option to remove the uterus with the tumors, or, if he thought best, to remove the tumors and allow pregnancy to go on. After opening the abdomen he concluded that it was best to remove the uterus with the tumors, for while one of the latter might have been completely extirpated at its pedicle, the pedicle of the somewhat larger one was broader and was believed to penetrate through the walls at one cornu.

With regard to the manner of operating for removal of the uterus, he now made no effort to save the cervix, but followed the outer wall of the uterus down, as the lower section was reached, rather close to the peritoneal covering, leaving a thin layer of the muscular wall, anteriorly and posteriorly, and the two flaps thus formed from opposite sides, when falling together, formed a more solid base than if the peritoneal coats alone were left, and answered the purpose which formerly he sought to fulfill by leaving a portion of the cervix. Formerly he had found, on trying to remove the uterus entire, that it was almost an impossibility to prevent its peeling away from the cervix, and that fact would naturally suggest the Baer-Goffe method ; but he had more satisfaction in removing the mass in its entirety and making the flaps as described. He had made the combined operation, forcipressure clamps on the uterine arteries and longer ones on the broad liga-



ments, the tips pulled down below the folds in the peritoneal cavity, covered in with gauze which was carried into the vagina. The patient made a typical recovery.

#### DISCUSSION.

Dr. FOERSTER said he had met with several cases of pregnancy complicated by large myomata. In one which he had reported, the utero-gestation had reached the seventh month; one myomatous tumor was as large as a man's head, another as large as a child's head, and both were in the way of delivery—the larger one directly so. When he was called, the cervix was dilated to the utmost, and a mass was felt filling the whole pelvis. Above this was the second fibroid, and above all was the child in the uterus.

He thought Dr. Bache Emmet had taken the right course in removing the uterus with the tumors, for the latter would probably have attained even a much larger size by the ninth month, and have constituted an insurmountable obstacle to delivery in the natural way. Concerning the use of clamps in doing hysterectomy, he thought they shortened the operation, the use of the improved instruments was attended with very little risk as to hæmorrhage, and the statistics of Richelo and others abroad showed marvelous results. He also thought it was best not to go too far toward the pelvic brim in enucleating the tumor, for two reasons—namely, danger of injuring the ureters, and that some of the shell left, whether a part of the cervix or rind of the uterus, might form a solider, better cicatrix, one more resisting to enterocele, of which he had seen several cases following vaginal hysterectomy.

The PRESIDENT remarked that in one case of myoma complicating labor he was compelled to perform Cæsarean section, as a cervical fibroid completely blocked the pelvic outlet, though it was not larger than an orange. The situation of the tumor was more important clinically than its size.

Dr. E. E. TULL had understood Dr. Foerster to speak of applying clamps to the uterine arteries. He thought that if they were so applied, they must constitute a decided obstruction to rapid operation. Dr. Tull applied them only to the upper fold of the broad ligaments, drawing these down to close the pelvic cavity below, thus forming a good base, and placing all raw surfaces outside the peritoneal cavity, securing perfect drainage. In the earlier steps of the operation he secured the ovarian and uterine arteries by ligature. The vagina was packed with gauze, some of which remained in ten days. The operation was short enough, requiring only ten minutes. Regarding fibroids

complicating pregnancy, he had removed one from the cervix as large as his fist in a woman four months pregnant, after which she went to full term and was delivered safely.

*Successful Cesarean Section and Hysterectomy.*

The PRESIDENT presented a uterus and annexa with the following history: The patient, a primipara, married, aged twenty-two, was sent to me, February 14, 1896, by her physician, Dr. James Law, on the advice of Dr. Malcolm McLean, who saw her in consultation, and recognized the necessity of prompt operative interference. She was at full term, and had been in labor for about eight hours when she entered the hospital. She was in poor condition, having been a sufferer from hip disease in childhood, with a history of eleven abscesses, frequent discharges of dead bone, etc. There was marked deformity of the left hip, with ankylosis and two inches and a half shortening. An indefinite history of chronic renal disease was given, but no urine could be obtained for examination. Marked œdema of the feet and legs. Heart and lungs normal. Pulse 90, fair; temperature 99.6°. Uterus high up and in a state of tetanic contraction. Cervix half dilated, and water almost entirely drained away. Foetal heart strong. Head presenting, O. L. A., and high above brim. Lower segment greatly thinned. The external measurements were: Spines, seven inches and a half; crests, seven inches; external conjugate, six inches and a half. The pelvis showed marked kyphotic and oblique deformity, with an estimated true conjugate of barely three inches. The pelvic outlet was so obstructed that it was evident that a living child could not be delivered *per vias naturales*, although it was of medium size.

It was absolutely impossible to cause descent of the head by external pressure.

Craniotomy was rejected, because there was no certainty that the child could then be extracted without prolonged efforts and serious injury to the soft parts. Symphyseotomy was contra-indicated from the ankylosis of the sacro-iliac joint, and the fact that it offered no certain prospect of a live child and the certainty of injury to the mother. The patient and her husband were earnestly desirous of having a living child, and decided to take the risk of a section, which was promptly performed. Operation under chloroform and oxygen anæsthesia. Time, about thirty-five minutes. Abdominal incision, seven inches. Uterus lifted out of abdomen, and cervix and broad ligaments grasped by Dr. Jarman, who effectually controlled the hæmorrhage.

rhage. Child, a male, six pounds in weight, was deeply asphyxiated, but was resuscitated, and is thriving. On account of the presence of two cystic ovaries the size of lemons, the suspicious appearance of the uterus, the desirability of preventing future impregnation, and, above all, the necessity of completing the operation as rapidly as possible, I decided to remove the entire uterus. This was easily done in the usual manner. Gauze drainage, *per vaginam*, after irrigation with hot saline solution.

Patient in fair condition after operation, but bad prognosis given. Almost complete suppression for first twenty-four hours, with pulmonary œdema. Urine contained seventy-five per cent. albumin with blood, blood-granular, epithelial, and hyaline casts. After first two or three days rapid afebrile convalescence, and healing by first intention. Now (eighteenth day) ready to sit up. Urine, twenty to thirty ounces daily, with ten per cent. albumin, but no casts.

[During the fourth week the patient had a sudden rise of temperature to  $104^{\circ}$ , pulse 120 to 130. No cause could be assigned, and on the twenty-eighth day she was feeling quite well, with a normal pulse and temperature. Urine as before. Child poorly nourished and does not gain.]

#### DISCUSSION.

Dr. G. H. MALLETT called attention to the value of caffeine in such cases. In his experience half a grain used hypodermically every hour stimulated not only the heart but also the kidneys. On examining the ovaries in Dr. Coe's case, he wondered that, with such extensive cystic degeneration, the woman had ever become pregnant.

Dr. BACHE EMMET thought there could be no question as to the advisability of removing the uterus in this case. Regarding the use of the hands by an assistant to control hæmorrhage while the incision was being made into the uterus, this method, or that of throwing a ligature around the lower portion of the organ, could be considered optional, for both were efficient and need involve no delay. He would suppose, however, that the hands would be more in the way. He, too, wondered that the woman had become pregnant in view of the disease of the ovaries.

#### *Sinus with Sutures of Silkworm Gut removed from an Abdominal Cicatrix over Two Years after Operation.*

Dr. A. B. TUCKER showed a sinus and three silkworm-gut sutures (two *in situ*) which he had removed from an abdominal cicatrix over

two years after operation. Both tubes and ovaries had been removed, for what cause he could not tell, as he had not done the first operation. At the time of the first operation ventrofixation had been done, and he showed the band, which formed the base of the sinus and was attached to the very top of the fundus uteri. This band was about an inch and a half in breadth and was very firm and non-elastic. He had heard it stated that women aborted after ventrofixation, and, in view of the breadth and strength of this band in this case, he could well understand why that should be the case, as it would be improbable for such a band to stretch sufficiently to allow the uterus to rise out of the pelvis.

Over a year after the second Cæsarean section on a patient he had been obliged to cut down and remove a silkworm suture, but the sinus had been superficial.

#### DISCUSSION.

The PRESIDENT thought that the band was certainly thicker than was usually seen after ventral fixation. Those observed by him at secondary operations had always been filamentous.

Dr. RALPH WALDO remarked that theoretically patients ought to abort after ventral fixation, but in reality they seldom did. He had given the matter some thought, and, having seen the abdomen opened in several cases where ventral fixation had been performed, he had reached the conclusion that the reason why such patients did not abort was due to the fact that the new band retaining the uterus was practically a new ligament, similar in nearly every respect to the broad ligaments, only being attached anteriorly instead of at the sides. It was composed of folds of peritonæum in which, no doubt, there was some cellular tissue and blood-vessels. Being similar to the broad ligaments, there was no reason why it should not, like them, stretch during gestation and undergo involution after labor. He believed that occurred in a large percentage of the cases.

Dr. J. DUNCAN EMMET was not surprised at Dr. Waldo's statement and his explanation of the fact that many women upon whom ventral fixation had been performed did not abort. We also saw after pelvic inflammations that the adhesions become stretched during pregnancy, until finally the uterus is able, as in other cases, to rise out of the pelvis. That only showed that God was good, and that Nature was able to do a good many things which we did not quite understand; but he did not think we need refer to the possibility of abortion during pregnancy in order to prove the undesirability of ventral fixation.

He believed that when the experience of many men should come to be collected, it would prove that ventral fixation of the uterus was bad. It certainly was a thoroughly artificial as well as eclectic method of supporting the organ. The uterus was, as all now believed, supported by its ligaments and the pelvic fascia. It was not immovably placed at a given situation in the pelvis, but the *limits* of its mobility, in a state of health, were fixed. The union of the forces which controlled the extent of its mobility established its particular *plane*, at which alone its vegetative functions could be normally performed. If a uterus be artificially fixed above or below its normal plane, some portion of the pelvic fascia or the uterine ligaments must be abnormally stretched and, with these, those portions of the uterine blood-vessels which they supported or which passed through them. There was thereby established an obstruction to the uterine circulation, which was a morbid condition.

As no two pelves were exactly alike, so the health plane of no two uteri was the same ; it undoubtedly differed at different times and under differing conditions in the same individual. Its very mobility was evidence of this. But it was impossible to know just what the limits of this health plane were in any given case, except by the *subjective* symptoms, which could not be ascertained at the time of operation from an anæsthetized patient. Therefore he considered that an operation which fixed the uterus at an arbitrary point in the pelvis, as ventral fixation did, established a morbid condition, and was consequently unscientific.

Dr. WALDO remarked that the specimen also illustrated the harm which came from buried non-absorbable suture material. It remained sometimes for months and even years without doing any mischief, but it might give rise to trouble at any time. Absorbable material would always answer every purpose.

The PRESIDENT thought it might be of interest to those Fellows who had not heard the paper read at the last meeting, by Dr. Edebohl, to know that while he had once strongly favored burying non-absorbable suture material, he had frankly abandoned silkworm gut for chromicized catgut.

Dr. E. E. TULL said he had once taken the trouble to look up the histories of some hospital cases of ventral fixation, and a number of women wrote him that for a time they were miserable, and afterward had become better. He found that in them the uterus had fallen from its elevated position. Then, on carefully looking over the histories of some other cases seen at the Post-graduate, he came to the



conclusion that where the operation was an anatomical success it was a therapeutical failure, and where later it proved to be a therapeutical success it was an anatomical failure. One woman who returned for treatment was found to have the uterus wedged against the anterior abdominal wall, and on her way home jumped overboard and ended her convalescence. Several women in whom the operation had been an anatomical cure came to my clinic. For a number of months all sorts of remedies were tried but failed to give relief. Finally, with the tenaculum inserted in the cervix, the organ was pulled down and freed to an extent which relieved their symptoms. Therapeutically ventral fixation was a failure, surgically it might be a success.

Dr. J. D. EMMET : I am very glad to hear what Dr. Tull has said. It goes to prove how kind Nature is. She often tries to undo our mistakes.

Dr. FOERSTER said he had performed ventral fixation many times, and he was not of the same opinion as Dr. Tull by any means. During the first few months, or even a year, the patients were full of complaints ; they were not accustomed to having the uterus in that position. It was not quite a physiological position, but after a while it became physiological, the fixation changing to suspension of the organ. He had had opportunity to see cases a few years after ventral fixation had been done, but had never seen any in which the attachment was so thick and heavy as in the specimen presented by Dr. Tucker. He believed the result depended on the way in which the operation was done. A good many operators had the habit of denuding the whole anterior surface of the uterus, putting in four or five, or even more sutures, thus fastening the uterus tightly and permanently ; that was overdoing. The better way was to introduce two or three silkworm sutures and remove them on the sixteenth or eighteenth day. A comparatively narrow band would be formed between the fundus uteri and the anterior abdominal wall, strong enough to hold the organ in suspension, but not strong enough to act as a hindrance in the development in case the uterus should become impregnated. Dr. Foerster mentions that four pregnancies occurred, to his knowledge, among the line of cases of ventrofixation he operated upon. He did not observe any cases of abortion.

Dr. J. D. EMMET asked how he removed the sutures, and Dr. Foerster replied that he included them in the incision at the time of operation and pulled them out through the anterior abdominal wall afterward. Four of his cases had subsequently become pregnant. One was a foot presentation, the second one a rather protracted labor. The

details in the other two were unknown, as his colleague at the dispensary failed to make inquiry. He thought abortion was liable to occur in cases where the uterus was fixed by too many sutures, just as had happened in vaginal fixation. But where the uterus was hung up with two or three sutures, which were subsequently removed, he believed it had full freedom to develop to its full size during gestation. After labor the uterus underwent inversion, and the band still retained it in proper position.

Dr. HERMAN L. COLLYER had watched a case of ventral fixation from the beginning to the end of pregnancy. It terminated in premature labor at the seventh month. The adhesions must have been dense, for as the uterus enlarged it seemed to push the abdominal walls up, while the organ itself remained somewhat below the umbilicus. It caused the woman intense pain. Regarding silkworm gut, according to his observation it was only a question of length of time as to when it would cause trouble. Sooner or later the patients had always complained of sensations of pins sticking into them, or other form of irritation. One patient began suit against a doctor for stitching her uterus to the abdominal walls with silkworm suture, claiming that the sensations were very disagreeable. She died, however, before the trial came off. As Dr. Foerster had said, one should be careful not to so fixate the uterus as to cause so thick and broad an adhesive band as the one shown.

The PRESIDENT did not think that ventral fixation could be dismissed without giving it some credit, especially in view of such statistics as Howard Kelly's. He knew that those statistics were *bona fide*, nearly every patient of the two hundred having been heard from since the operation. The ultimate results were certainly as good as those which had been reported from other methods of fastening the uterus forward. We could not generalize from twenty-five or fifty cases. The great trouble with statistics in this country was that the patients were seldom kept under observation for more than six months or a year before the ultimate results of the operation were stated. When they were watched from two to five years it would be found that in the great majority the disagreeable after-symptoms originally present disappeared. The President said that personally he had obtained excellent results from ventral suspension, and as yet had seen no better operation for cases in which after performing cœliotomy and separating adhesions it was desirable to prevent the recurrence of retroflexion. He did not think that any intra-abdominal operation on the round ligaments would keep the uterus permanently forward.

Dr. J. DUNCAN EMMET said there was no question but that the gentlemen were correct in stating that after a time patients subjected to ventral fixation lost the sensations of which they complained. But that did not offset his objection to the operation. We saw exactly the same thing in long-standing retroversion or backward fixation of the uterus. After Nature had resented the malposition a certain length of time and found that she could not throw off the incubus, she began to accommodate herself to the unnatural condition of things. All had seen cases of retroversion with the uterus absolutely fixed in the posterior *cul-de-sac* in women who had ceased entirely to suffer from pain. The circulation had adapted itself to the changed condition. Although the same thing would in time occur in ventral fixation, yet this was no excuse for doing an operation which was wrong both anatomically and physiologically. Dr. Coe had asked, How could the uterus be held up in a better way? His reply was that in the parous woman, where there were also prolapsus and the uterus was free of adhesions, it could be held in place by plastic operations upon the cervix and the vaginal walls, by which the torn or over-stretched pelvic fascia would be restored to a state of integrity, and the normal support be thus given to the pelvic blood-vessels. By the process of involution thus inaugurated in the uterus, vagina, and uterine ligaments, the uterus would gradually regain its health plane and remain there.

The question having been asked him how he would remedy the backwardly displaced adherent uterus in women who had not borne children, Dr. J. D. Emmet replied that he had seen no cases in which stretching the adhesions, using pessaries and doing plastic operations on the vagina, as the several indications occurred, had not kept the uterus up and cured the case. He had seen hundreds cured by these means.

Dr. BACHE EMMET wished to express his adherence to the views, which the majority had expressed, as to the great benefit resulting from the operation. He meant, however, the method spoken of by Dr. Coe—suspension rather than fixation. Of course, if the fixation was only slight, it would become after a while suspension. The method advocated by Dr. J. D. Emmet was an excellent one in women who would come to be treated for months or years (and we had all had our successes with it), but in the working class, who required to be benefited in a few weeks, it was necessary to operate and suspend the uterus. It had been said the operation was not surgical. He thought it was just as surgical as stitching the vaginal walls one to the

other and holding the uterus up from below. The experience of large numbers justified suspension. He used catgut of a kind which would resist absorption ten days. He had never had sepsis.

Dr. COLLYER asked the President whether he meant by suspension the operation as described by Dr. Goelet, where the uterus was swung an inch and a half or two inches from the abdominal walls by sutures. He thought that method was objectionable.

The PRESIDENT replied that he referred to Dr. Kelly's operation, which was a scientific one.

Dr. WALDO remarked that he had performed ventral fixation, and had seen many patients two to three years after they had been operated upon, and had found the uterus in position and the symptoms cured.

*Calcareous Degeneration of Ovaries, with Fibrocyst of the Uterus ;  
Hysterectomy ; Preliminary Report.*

Dr. J. DUNCAN EMMET read the history of the case and presented the specimens.\*

During the DISCUSSION the question was raised whether the cystic tumor might not have been ovarian instead of a fibrocyst of the uterus, and whether the larger calcareous mass might not have been a dermoid or a calcareous deposit in the broad ligament, instead of calcification of the ovary.

Dr. DUNCAN EMMET replied that a microscopic examination had not yet been made, but he felt convinced of the nature of the specimens presented as set forth in his paper.

*Remains of the Urachus.*

Dr. RALPH WALDO presented a part of the urachus which he had removed while operating on a patient for ovarian abscess and peritonitis. The cord came into view in the lower part of the median incision, and on carefully examining it he found that it extended from the bladder to near the umbilicus, where it became lost in the peritoneal tissues. He cut it between two ligatures. There was nothing else of special interest in the case. The patient was doing well.

*An Intra-uterine Pessary.*

Dr. FRANCIS FOERSTER presented a new stem pessary for use in anterior and posterior retroflexions. He said our means for treating

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\* This case will be presented in full, with illustrations of the specimens and with the pathologist's report (not yet returned), in a later issue of the JOURNAL.—ED

flexions were scant and, to say the least, inadequate for the purpose. Introducing the sound and bringing the uterus forward or back, as the case required, as well as the insertion of the old stem pessary, one must, on looking at the results and the dangers of the treatment, regard as unsatisfactory. After the use of the different flexion pessaries, now and then a patient became pregnant, and the results proved permanently satisfactory, but usually they did not. Surgical treatment in the way of divulsion, thorough curettage, and use of gauze, usually gave the best results yet, but here also they were in most instances only temporary. He had devised the instrument presented; he thought it would form an adjuvant in the treatment and cure of this discouraging class of cases. The main object of it was to prevent the uterus from immediately returning to its faulty position of flexion. It consisted of a flexible cannula made of coiled steel spring into which, after its introduction into the uterus, the metallic stem could be introduced with safety, bending the uterus and retaining it in flexion for a time opposed to that which had previously existed. The cannula portion had a circular flange, with four perforations, for fastening it firmly by sutures to the cervix uteri while it was being worn—say ten or twelve days. A thorough curettage must precede its insertion. Strict antisepsis and cleanliness had to be observed, and the patient remained in bed while the stem was in. It was intended to give the uterus a little time in which to become accustomed to its new and improved position. The poorly nourished tissues at the flexion angle, resembling almost cicatricial tissue, would have a chance to improve their vitality, so that a return of the uterus to its original faulty position might be reasonably excluded. He had employed it in five cases. The first was in a girl of seventeen, with the uterus retroflexed, and the ovary prolapsed. She menstruated with the instrument in without any pain, and afterward, when he made an examination, he found the organ as he had placed it—in moderate ante flexion. A Hodge's pessary might be inserted to avoid a return of the trouble. In the other cases also the uterus had remained in the position he desired.

Replying to Dr. J. D. Emmet, who asked him what were his ideas of the pathology of flexion, for he had understood him to speak of scar tissue, Dr. Foerster said the muscular element was impaired at the flexion angle, the circulation considerably interfered with, and the tissue closely resembled connective tissue. The instrument presented ought not to be used as long as the uterus was bound down by inflammatory bands, but only in uteri which could be repositied easily by means of the sound.



Dr. J. D. EMMET thought the instrument was an excellent one for carrying out the purpose had in view, but he was decidedly opposed to the principle. His experience led him to believe firmly that flexure was due to interference with the circulation outside of the uterus, and not to conditions in the uterus at all, and that the flexure neither caused disease in the uterus directly nor was a diseased condition in itself. He did not believe flexure of itself caused symptoms. He had examined many flexed uteri during menstruation and found these uteri had become straight. Every uterus, he believed, straightened itself during menstruation. Flexure certainly did not interfere with the menstrual flow, for he had frequently been able to pass a large probe into such an organ during the pain. He had also seen as many women suffering with dysmenorrhœa who had no flexure as those who had flexure. "Mechanical" dysmenorrhœa, therefore, was not the cause of the pain. But it was very easy to understand why the uterus should be the seat of pain if the flow of blood was interfered with outside the organ where the vessels were about to pass into or out of the uterine body. Such an obstruction always occurred when the uterus suffered from any degree of prolapse. Therefore he was opposed to the use of this instrument or any other which was designed to cure a condition which was innocuous. The symptoms, in his opinion, were due to the results of perimetric or parametric inflammation.

Dr. FOERSTER said he did not understand the theories advanced by Dr. J. D. Emmet. On the contrary, he believed there was such a thing as mechanical dysmenorrhœa; that the flexion caused disturbances in the uterus. It was a well known fact that menstruation caused the uterus to straighten somewhat in ante flexion and retro flexion, but at no time did it form a straight line. The straightening occurred the second or third day, after a large amount of blood had collected in the uterus. Then clots passed, and there was a certain amount of pain. On straightening the organ, one had no dysmenorrhœa. Where, then, did the pain come from? He would stick to the old theory.

Dr. TULL remarked that about five years ago Dr. Talbot presented an instrument identical with this one, except the stylet, and Dr. Bache Emmet said the principle of a flexible sound was old, as Dr. Otis had long ago employed it in the sound for the male urethra.

Dr. FOERSTER said he thought the instrument as a whole was original. He had intended to arrange the cannula portion of the in-

strument similar to König's tracheotomy tube, but the instrument-maker suggested using wire spring. He was not aware that Talbot had employed wire spring, as suggested by Dr. Tull. He saw the main feature of the instrument in the possibility of being able to put the cannula permanently in anteflexion or retroflexion position by means of a properly constructed stem fitting into the same.

Official Transactions.

ARTHUR M. JACOBUS, M. D., *Secretary*.

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## TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, March 5, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.

*Chronic Inversion of the Uterus, with Specimen and Photographs.*

BY A. M. FULLERTON, M. D.

(See page 596.)

### DISCUSSION.

Dr. JOSEPH PRICE: All such cases, of course, are interesting, and all should be reported, and we are greatly indebted to Dr. Fullerton for the full report of these cases.

The doctor alludes to the remarkable tolerance of patients to similar conditions and worse. Keith alludes in his work in operative gynæcology, particularly that of hysterectomy, to the remarkable tolerance of patients to surgical interference, and also to suppurative forms of trouble in some of his own cases; one is simply surprised that they ever recovered. While dwelling on this remarkable tolerance, we must remember that sometimes in healthy patients it only takes a feather to depress the beam. As John Homans says, "it takes some eighty or one hundred rounds to knock out some pugilists, while it only takes one to knock others out." Dr. Fullerton did not intend, probably, to refer to the differential diagnosis, simply making one reference to illumination without dwelling pointedly on differential points that should always be gone over most carefully in cases

of this kind. Only recently some one wanted to amputate the uterus for supposed tumor (only four squares from this building). Fortunately, an old practitioner who had had considerable experience was called in, who at once recognized inversion. The uterus was replaced without much difficulty. These accidents are simply horrid and are not uncommon. I remember seeing a patient on Wood Street some years ago. I was sent for to amputate a tumor. The baby had not yet been dressed, and the doctor told me he had delivered the after-birth and there was a tumor remaining that he wanted me to remove. The only apology he made for asking me to do this was because he had no instruments at hand. I at once recognized the inverted uterus. I presume if he had had the instruments he would have amputated it. We are all familiar with numerous cases of amputations without recognizing the precise nature of the trouble.

There is a London man who gives a long list of such cases. Indeed, I think he published a little book which gives an illustration of an apparatus employed in a series of twelve or more cases of chronic inversion, restoration following the use of this little machine. I have the machine in my drawer, where it has remained for the past ten years.

*Presentation of Post-operative Sequelæ and how they favor Mortality,  
with Report of Cases.*

BY JOSEPH PRICE, M. D.

(See page 573.)

DISCUSSION.

Dr. NOBLE : Dr. Price touches on many points in his paper, but I care only to discuss one phase of it. In my own work, up to one year ago, I had operated upon every patient, with pelvic inflammatory trouble of sufficient severity to require operation, from above. I never refused to operate upon one, and I have operated upon a large number of bad cases. My experience with the cases when there were not only pus tubes or ovarian abscesses, but in addition there were abscesses outside of the tubes and ovaries—that is, circumscribed purulent peritonitis—has been that a goodly percentage of them died when operated upon from above. This refers particularly to those much prostrated and septic at the time of operation, and not to the average case of pus tubes or ovarian abscess. I have had enough experience with operating on that class of cases by abdominal section

to feel convinced that it is impossible to get good results by that method. The work of other men with which I am familiar demonstrates the same thing, so that I do not hesitate to disagree *in toto* from the previous speaker with reference to this particular class of cases. Where we simply have pus tubes, abscesses in the ovary, or adhesions, we all know by experience we can clean them out from above and the cases will get well, and that is the best way to deal with them. All of us agree to this, except perhaps those who have been converted to vaginal hysterectomy in the treatment of these cases.

When there are pus collections outside of the tubes and ovaries, especially extensive ones, when patients are much prostrated, particularly when patients have been septic for days or weeks before operation, twenty-five or thirty per cent. have died after operation from above. This fact has caused me to look for a better method of dealing with this particular group of cases. Since one year ago, when I first drained from below, I have had five cases treated in this way with the most gratifying results. I am satisfied that three or four of these cases, each a particularly bad one, would have died had I done an abdominal section.

For example, only ten days ago I operated on a patient who had a temperature of  $103^{\circ}$  to  $105^{\circ}$  F. at night for seventeen weeks. She had a suppurating ovarian tumor. The patient had had puerperal eclampsia, and after that puerperal mania. At the time I saw her she was so prostrated that, in my judgment, she had only the remotest chance of recovery by abdominal section. I was able to reach and drain this tumor through the vagina, and in the ten days since I operated upon her she has so greatly improved in condition as to be able to sit up; the mental symptoms are greatly improved; mania has almost disappeared, and I have every reason to think she is going to make a good recovery from operation and enable us to take out this tumor when she is in good shape to stand it.

I operated only two days before that on a patient some six weeks after miscarriage, who had a temperature of  $103^{\circ}$  at time of operation. She was not nearly so sick as the other patient, although she had a pulse of 130. There was a large mass of exudate which filled up the false pelvis on the left side. I could distinctly make out an abscess in front of and to the left of the uterus. I made an incision in front of the cervix, got into the abscess and drained the abscess of the left broad ligament, and then made an incision to let out pus in the groin. I did not have to go below the muscles; and I have no doubt the pus

worked its way along the round ligament and was burrowing toward the surface. The patient is doing very well and making a good recovery. I could go on with three other cases. One was a particularly interesting case ; it was that of a nurse (nurses, in my experience, are the worst cases we get hold of ; they put off operation until they are in a desperate condition). For three months she had had hæmorrhages from the uterus and a temperature of  $105^{\circ}$  for a week or ten days, when she was operated on. I saw her when she was in this condition. She was having rigors ; pulse above 130 ; was much emaciated from the hæmorrhages, which had lasted three months, and from the septic condition, which had been present for at least ten days. I had good reason to believe she might have pyæmia in addition to this trouble. I found a large abscess of the pelvis with peritonitic exudate half way to the liver. I was able in two minutes to evacuate the abscess through the vagina, and at the end of three weeks this patient is up and about her room again and over the acute condition which threatened her life.

The wiser plan in this special class is to drain and get the patients over the acute septic condition ; and then later, if necessary, remove the diseased appendages. Of course it would be better to operate by abdominal section upon such patients before they get in this desperate condition ; but if they come to the notice of the surgeon in this bad shape, get them over their septic state by drainage and then do whatever is necessary to effect a cure.

In this connection I would like to call your attention to the course pursued at Johns Hopkins Hospital. According to the latest report, they drained thirty-three of these cases, with one death. The operators at the Johns Hopkins have far more faith in the curative effect of these drainage operations than I have. They look forward to the majority of these patients remaining well. My own judgment is that the majority of them will need subsequent operation, but it is a great thing to get thirty-two out of thirty-three women over an acute septic condition.

Dr. G. BETTON MASSEY : The fault of a paper like this is, it seems to me, that it simply reiterates opinions and does not give us any facts or proof. We do not have any lists of cases that Dr. Price has treated in one way compared with lists he has treated in the other. It is simply going back to past-century style with its mere adhesion to opinion, adoption of authority, and following out of preconceived notions. Apparently, some of the other operators have tried both kinds, and I am glad to see that men like Dr. Noble have finally



come to the conclusion that the method of dealing with an abscess is simply to open it, and not to attempt to make a bloody operation to cut abscess walls out. This is work that merely comes close to my own, yet I have been very much interested in it from the beginning. I have urged continuously that there was too much abdominal section being performed, and I hope the day will come when even Dr. Price will see the need of simply opening abscesses when they exist.

Dr. JOHN C. DA COSTA: While agreeing to a good deal Dr. Price has said as to the advisability and safety of removing tumors and ovaries through the abdomen, I can not agree entirely with him when he speaks of the great facility and ease with which abscesses can be removed. It may be so in Dr. Price's cases, but not so with all operators. There are many abscesses that are not located in the ovary, but in the tissues outside or below, and some of us are not able to "remove the sacs with great facility." In cases of that kind, where it is in the tissue below the ovary and tube, I think the best results will be found by opening from the vagina and draining. I have operated upon several of these cases within the past three or four years, and I do not remember having lost a single case. I wish I could say as much for those opened above. Where the abscess was thoroughly opened it was sometimes impossible to remove all the walls, and drainage through the abdomen did not seem to do the work. In the majority of operations I believe with Dr. Price the abdominal route is the one. But when you come to a cancer of the uterus I think you can remove that much more safely, with less risk to the patient, with a very much quicker recovery, and without as much danger of infecting the other tissues by taking the vaginal route rather than by the abdominal route. If we take the abdominal route in abscesses, it is often absolutely necessary to puncture through the vagina to drain the abscess, if drainage through the abdomen will not do the work; then you have the objection of two wounds in place of one, and the added risk of infection.

Dr. J. PRICE: What Dr. Da Costa has said in regard to difficulties of operation is quite correct, but what he has said fortifies my position in replying to Dr. Noble. Dr. Da Costa refers to single or multiple abscesses, an abscess at some other point independent of the primary lesion, be it an ovarian abscess, unilateral or bilateral, or pus tubes; and it is just on this group of cases I wish to dwell pointedly. There is not a living surgeon in this country who would go into the vagina, honeycombed as many of them are by double pus tubes, with an abscess in the mesentery or sigmoid, or five or six of them.

One puncture relieves an abscess of the appendages and leaves the mesenteric abscess untouched, and it is just this class of cases in which I hold work from below is prohibited.

I hold in my hand a letter from a physician in which he tells me of a patient who had previously been seen by two good operators (one of them, I think, the chairman of this Society, Dr. Montgomery), who advised postponement of operation. She is the wife of a physician, and these operators suggested that she return in the autumn for an operation. She waited until she found she was dying. I was summoned from an adjoining city, and removed with ease a pus tube and ovarian abscess of the left side. I recognized her extreme prostration, and I had not time or I should have determined the precise nature of the case. I irrigated and drained, but she died of sepsis, and they found an abscess burrowing for some six or eight inches post rectal. That was a complication of puriform exudate. A rectal incision would probably have incised posterior accumulation, leaving the other. It is simply the delay in this case which brought about the multiple abscesses.

Dr. Massey congratulates Dr. Noble on his remarks. I wish to emphasize this point. Dr. Noble has gone on record as disagreeing with Polk and others about the vaginal route, and now at this meeting and at this eleventh hour he agrees with them *in toto* and contradicts his own mortality. The point I wish to make in regard to incision is this: You remember that Dr. Noble has referred to two of his own cases which he incised and drained to remove the sepsis, and "*now they are in better condition for operation.*" The demonstration I wish to make in this connection is this: Will you take a chain of glands in the neck, in the groin, in the axilla, or anywhere else for the enucleation after incision treatment, or take the chain for a primary enucleation? Or will you take the case with prolonged ether, prolonged operation, the increased hæmorrhage and increased shock, aside from the chronic shock and emaciation incident to this delayed enucleation? Precisely the same condition of affairs exists in bilateral pus tubes and ovarian abscesses with a vaginal puncture and drainage.

When the abdomen is opened, the ovarian abscess may be punctured with precision and any other diseased condition defined. You have in the second operation, the vaginal, an old cicatrix; in the two operations you increase your shock and increase your hæmorrhage. It is simply a matter of time and experience. I insist that you recognize the error of your way in just these cases.

In one of the cases referred to of thirty-three incised, with one death (a high mortality), and all remaining in the position of Dr. Noble's two cases, to be done over for completion, the statement is made, "I lost one by hæmorrhage." I am speaking simply from the surgical standpoint, and I say it is unsurgical to make these two punctures when enucleation of these ovarian abscesses and pus tubes would have been a very simple procedure. There are hundreds of women wandering over this country at present who are the victims of just this kind of bad surgery. Remember, Dr. Noble says the women, at least two of them, are ready for a second operation; he failed to include the thirty-two remaining of the other group he referred to. That is all very well. But how does he know that these women will come back to him? Rarely do they go back to the original operator for a second operation, but drift from the hands of one gynæcologist to another. In that group of cases the mortality is high, the operation is thrice complicated, and it is nearly always unsatisfactory. Speaking of the large number of deaths following the abdominal operation, Dr. Noble's statement does not correspond with the early statistics of abdominal sections for suppurative tubal and ovarian disease. The mortality in the hands of the few early operators for suppurating forms of pelvic disease was very low. Right here in this city I can remember very well a number of my students, a few years ago, did sections for angry pus tubes and saved them all. I can find the cases; they were all recorded, and they were all their maiden operations. From a surgical standpoint, I contradict the statement that it is a difficult operation. It is important to get results. Of course it is important to get good results in these operations; a stitched sac, an incised ovarian abscess stitched to the abdominal wall, remains an incomplete procedure. We should do as we would in any other part of the body—enucleate the abscess; that is the ideal method of treating ovarian abscesses. There is a surgeon present now whom I remember assisting in twenty-seven abdominal sections, with two deaths. They were both malignant and hopeless; they were early operations in the experience of this surgeon. I insist that all these cases with vaginal incision and drainage remain ill patients to wander over the country. I remember some cases that have come to me who have told me they had spent small fortunes in treatment; they had been in hospitals, sanitariums, and rest cures. Some of them came to me with from three to five little drains sticking out of the vaginal vault. I operated on these patients, enucleated, and the patients have made beautiful recoveries. One patient went into Dr. Massey's hands, and even in

that case, suffering from precipitated menopause, I removed the uterus; she recovered after the fifth or even tenth operation, and now she is a healthy, rosy-cheeked woman. Josephine Mallison was a pus case. Seventeen witnesses testified to that woman's bad mental condition. I was really an accessory to that crime, for I got the woman ready for it. She talked to the nurse about the preparation for the crime that followed, and after she got up and took two or three rides in the Park she made the onslaught on her victim.

In the cases referred to of one in thirty-three of incised vaginal vault, all of these thirty-three remain invalids, some of them the victim of amyloid disease of the liver and kidneys. They all remain to be completed by some one. I make this statement from the fact purely that such cases come into my hands almost daily.

So good a man, and one of the best in this country, as Hunter Maguire, had a patient come to him with a huge ovarian abscess. He examined her in the hospital, and recommended incision, which was done. She was so ill she came in between two nurses. She made a nice recovery, went home, refilled, and returned for its removal. He simply stated that it was a dangerous procedure, that he would not do it, and referred her to me. I enucleated, with resulting fæcal fistula, and she made a speedy recovery. Such cases are the bane of my surgical existence.

Dr. NOBLE: I regret very much to trouble the Society with matters in the least degree personal, but Dr. Price makes statements at variance with what I have said. As to any change in my position in dealing with pelvic inflammatory troubles, I am always glad to change for the better, but, as I said in the beginning, my remarks to-night were addressed to one particular class of cases, where the patients were distinctly septic and very ill at the time they came under the surgeon's notice.

The next point is that I dispute myself as to mortality, as heretofore I have reported a low mortality in my abdominal operations, and now that I give my mortality as twenty-five or thirty per cent. It is hardly necessary to point out that I was referring to the class of cases that were desperately ill at the time they were operated upon—septic patients with large pus collections outside of the tubes and ovaries. The mortality in this special class has nothing to do with general mortality.

Finally, Dr. Price states positively that all the Johns Hopkins cases reported by me are now invalids. He can not have any infor-

mation concerning these patients. Hence this is a positive statement of an alleged fact without any knowledge on his part.

I have no reason to change my opinion in general as to how to deal with the inflammatory conditions in the uterine appendages. I do not find myself in accord with Dr. Polk, as stated by Dr. Price, although I respect his opinions as those of one of the best of American gynecologists. I am not at all in accord with him in giving up abdominal work and doing all, or most all, of these operations by the vagina.

*Some Complications and Sequelæ of Gynecological Operations.*

BY W. E. PARKE, M. D.

(See page 575.)

DISCUSSION.

Dr. C. P. NOBLE : I think we must all have been impressed with the many careful observations upon the part of Dr. Parke which led to the accurate clinical pictures which he has given us of many of the sequelæ of operations. There are so many points covered in the paper that I shall only speak of one or two. The first is the question of infected pedicles. I wish to speak of that because I think that infected pedicles are often present when the diagnosis of pelvic hæmatoma is made. Tait reports a large percentage of pelvic hæmatomas after operation. In my own practice I never saw a pelvic hæmatoma. It has always seemed to me astonishing that one man would have a great many and another would have none at all. I have had a certain percentage of infected pedicles, a certain percentage of cases of localized pelvic exudate, and it seems to me the diagnosis of pelvic hæmatoma should frequently be a diagnosis of pelvic exudate or infected pedicle.

The next point was phlebitis. The general description of phlebitis following operation has been that of my own experience. I had a case within the past year differing from any case I had seen before. In this case after beginning in the usual way with the symptoms of phlebitis, the patient had at different times violent pains, first in one part of the body, then in another, associated with obstinate nausea and vomiting, the patient being extremely ill for a day or two, the temperature running up to  $103^{\circ}$  or  $104^{\circ}$  F., with very rapid pulse, so that it looked as though acute sepsis was present, and the woman was going to die in a short time. After each exacerbation the symptoms



would all subside, and in a day or two she would be as well as if she had never had the attack. The only localized evidence of phlebitis, aside from the initial evidence in the groin, which rapidly disappeared, was an attack of pleurisy, which I presume was embolic. Subsequently there was a localized inflammation in the upper part of the abdomen in the region of the liver. I was under the impression that probably septic emboli were being deposited in different parts of the body. She made a perfect recovery; no pus was formed in any part. After a tedious illness she made a good recovery and remains well. That, I think, would exclude a diagnosis of septic emboli. I can hardly conceive of septic emboli setting up inflammation without pus formation, which would have to be evacuated.

Dr. G. BETTON MASSEY: I think we can all appreciate this interesting and scientific paper. I have one suggestion to make: that the word "early" should precede the word "sequelæ," as so many late sequelæ are found that are not within the scope of the paper. The description given of early septicæmia is interesting—how, after certain operations, the patient's system was overwhelmed with septic material. We can easily understand that in considering the method by which the body usually protects itself from septicæmia, explained by the phagocytic theory of Metchnikoff, which supposes that abscesses and abscess cavities and sinuses and other foci of inflammatory bacterial origin are shut off from the cavity of the general system by a wall of sentinel cells. If, under these circumstances, where Nature is doing her best to protect the general system, we crush down this wall by a violent procedure, by separating adhesions which have been planted there by Nature, as well as by scraping away the walls too deeply, we destroy this protecting barrier, and possibly that is the explanation of some deaths: the deaths in cases of chronic and acute inflammatory trouble, where an operation other than mere opening has been thought necessary. One of the cases related to-night by Dr. Price was that of the wife of a physician who died after he had operated on her. This reminded me of a case very similar, reported here some three years ago by myself, where a chronic abscess in the region of one of the ovaries was treated expectantly and which opened through the rectum, which was apparently the way the case alluded to was opening. After a tedious illness, which I suppose surgeons would have become impatient under—an illness which lasted three months—this sinus finally closed, having been open fully two months, and the cavity healed from the bottom under the influence of Nature. I think it is a mistake to refer to these abscess cavities as having anything viru-

lent about them. There is nothing there that Nature can not dispose of, provided you leave an exit for pus.

Several times during the three months the abscess closed and there was a return of the symptoms, but under mere expectancy and ordinary medicinal applications she entirely recovered and is to-day absolutely well. I have a good opportunity of knowing that she has never been under another doctor's care during the three years that have elapsed since the time of recovery, the case not having been reported until a year had elapsed, so I think such a case should be considered, in determining what course to pursue in threatened abscess of the pelvis, whether we should not permit Nature to clean out and protect the system in her own way.

Dr. J. PRICE: Of course we all appreciate the full presentation of conditions acute in nature and following immediately upon sections. It is very common indeed to listen to post-operative discussions and post-operative sequelæ of altogether different character—that of hernia, visceral and omental adhesions, and fæcal fistulæ or fistula due to old dirty ligatures; it is exceptionally we have the pleasure of listening to a paper full, complete, exhaustive of these conditions which begin even before operation—for instance, the manias, the mental conditions referred to, the renal and lung. That is the only point I would criticise.

Many of the lung and renal complications antedate operation. Sometimes in my own cases I have had operation arrest the sepsis; patients have come to me having had a hæmorrhage one or two days before operation and the lung condition would clear up immediately after. I am satisfied many cases of phthisis are due to neglected puriform disease of the pelvis. Patients have a habit of traveling long distances, and it is an error to operate the day of their arrival or the following day. It is wiser to wait five days, or even longer. They will take a common coach and ride to Philadelphia or some city even in the most urgent cases. It is very common in dispensary practice to have a woman wearing a filthy red flannel shirt come for examination; she has probably worn it three or four weeks without washing; she has neither strength nor assistance in keeping clean. When operation is suggested to them they will go home and take off this shirt and probably put on a light one. Indeed, so common is this in my experience that I always look out for this when she enters the hospital, so that I may be prepared for what may follow in the way of lung complications.

*The Mental Conditions.*—More than fifty per cent. of so-called neu-

rasthenic patients—who wander over the country, spend two or three summers in a rest cure and winter in Los Angeles, another in the south of France, and so on—in my opinion, suffer from dropsical tubes. I might name two or three patients, well known, who have spent some time in private asylums, who, after removal of dropsical tubes, are now rosy-cheeked women. Nothing so disturbs the nervous system of women.

As to mania, Keith gave it as one of the strong contra-indications to the removal of fibroid. Tait alludes to it. Tait also alludes to sudden deaths in fibroid. Patients would give a scream and die suddenly. These are evidently the clot cases. In my own experience the results have been precisely those of the doctor. The women have given a scream or two and died; no nausea, no vomiting, cool skin, a slow pulse for ten days or two weeks, then they have screamed so they could be heard from top to bottom of the house, and twenty minutes or ten minutes later were dead before they could be reached by myself or nurse.

For instance, a year ago I carried a patient from a private room to an adjoining room to place her with another patient. She protested that she was satisfied with her room; ten minutes after the transfer she gave two or three screams and was dead.

Emmet alludes to a similar case, although I think this case might be classed under emotional disturbance. The patient was removed from a cottage outside the main building to another room. She protested she was well suited with the cottage and did not want to be moved. Her temperature ran up, and she died in three hours or a shorter time after removal.

In regard to peritonitis or post-operative inflammatory troubles, it strikes me the nomenclature is at fault. We cling to the old nomenclature. About all that die are septic. The multiple abscesses the doctor alluded to belong to that group; but peritonitis and non-septic peritonitis or—just using the old nomenclature—the hyperæmias do not die. They suffer from constipation and from marked symptoms. I find a soap and-water enema with free passage of flatus and fæces gives relief; whereas, if the same group of cases are allowed to go on without relief, they die from overdilatation or paresis. The majority of cases that die are septic. In that much there is no criticism of what has been said.

*Shock.*—It is difficult at present to recognize this to any extent, because patients at present are prepared for operation. The suggestion by a member of this Society some years ago for the free use of

strychnine a few days before operation is a splendid measure to avoid shock. Some of the recent discussions on urine have contained allusions to scanty urine following operation. This is a good suggestion. For instance, free purgation, withholding fluids after operation. Free action of the skin is a very satisfactory solution for the ten or twelve ounces of urine secreted during the first twenty-four hours. My experience differs in the secretion of urine. I have accurately measured the amount for the first twenty-four or forty-eight hours, and the quantities are larger than the records of some three or four papers recently read on the subject.

Hæmorrhage ought always to be recognized ; and those given by the author and a good number of the patients who die from so-called shock and the like, die, in my experience, from hæmorrhage. It is surprising the number of patients that die from hæmorrhage or die from other unrecognized causes. I was alluding this evening to a patient in which I did a very careful piece of surgery. Resecting the bowel and stitching sixteen inches of ileum, I placed a drain for hæmorrhage and for oozing—simply for fluid, because there was no filth in operation, no filth contents to drain out. Some twelve hours after section I recognized bowel contents. I stood by the patient for a few hours myself and cleansed the tube, determining whether I should reopen and seek the leak. But it cleared up immediately, and she made a perfect recovery. I simply allude to that to refer to the tube being a safeguard in hæmorrhage and also in other accidents—like those of injuries to ureters, bladder, or bowels—a perpetual sentinel.

The doctor has referred to ligatures. Some of you have probably received reprints from a California operator, where his patients suffered a few days after operation and abscesses formed, some of them were reopened, and ligatures were found which continued to discharge for a long time. One of the patients was reopened thrice in seeking a ligature. Ligatures are used too freely. Operators are in the habit of leaving the pedicle too large ; great, broad, knife-blade pedicles, wide as your four fingers, and chain sutures, are a mistake in the vast number of these cases.

Phlegmasia occurs in a few cases, but in my experience it has not been in septic cases. The deep enucleation of abscesses has never been followed by phlegmasia. Only recently I have had a case. The woman now has her leg in flannel and bandaged. It followed deep enucleation of left cystoma. On the fourth or fifth day this woman's leg became exceedingly swollen and painful. Notwithstanding the

operation had been a clean one and she had a clean tongue, a fæcal fistula was found; this was stitched most carefully and drainage by gauze and glass was employed. This woman has a phlegmasia now because there was this dirty point in the bowel. She has a phlegmasia without a chill, with a little tenderness on the left side.

The catheter, I am satisfied, is the very first instrument which is responsible for the post-operative suffering. It is exceptional for some nurses to take more than common pains to cleanse catheters and cleanse patients. I am satisfied that if catheters were carefully cleansed, like other instruments used in surgery, and the patient was thoroughly cleansed with corrosive cotton about the urethra, such troubles would not follow. For instance, the rule of making patients void their urine at short intervals early is a good one. Over-distention results in retention, and it is impossible after twelve or fourteen hours to get the patient to pass her urine, but five or six hours after operation she will pass it. Since changing my rule of prohibiting the use of the catheter and urging early voiding of urine, patients have but little difficulty.

Dr. PARKE: I should like to ask members of the Society whether in their experience they have met with phlegmasia beginning on the right side, and what is the explanation of its always starting on the left, or at least so frequently.

*A New Operation for Certain Cases of Procidentia Uteri.*

By C. P. NOBLE, M. D.

(See page 607.)

*Case of Abdominal Pregnancy progressing to Term, with Specimen.*

By W. REYNOLDS WILSON, M. D.

(See page 605.)

DISCUSSION.

Dr. J. PRICE: The case should not go on record without some discussion. The subject is important to all interested in obstetrics and gynæcology, and it is almost American in nature. The first two operations, delivered with a diagnosis and premeditated, were done in America by Dr. William Baynum, of Virginia, in 1799. The first operation was done on the wife of a planter. The second was done after 1799, was delivered and premeditated, and both recovered; and I have repeatedly said and felt that it was the influence of Baynum



that influenced McDowell to do premeditated ovariectomies, and not the counsel of John Bell. This work originated in America; so did hysterectomy. Hysterectomy was done in the sixteenth or seventeenth century in New Orleans, and were deliberate, premeditated, and successful operations. Foreigners are in the habit of claiming so much, but America can lay claim to all.

I differ with Dr. Wilson as to the fœtus having remained in the abdominal region; that the peritonæum would permit a thing of that kind to remain there many hours. The peritonæum will digest a beefsteak in a short time, and I believe it would digest a healthy infant. The infant might remain twenty-four or thirty-six hours, but I hardly think it could have remained there longer than that. I well remember a case operated upon by my brother in which the child is to-day living and healthy and intelligent. The mother is also living. This woman had a regular spurious labor which lasted for some time and then subsided. The abdomen was opened at midnight. The child was found to have lost all of its skin. When removed, it recovered nicely, and so did the mother after prolonged sepsis. This was a rupture of the sac. I believe these cases are all tubal. There might be an exception in a parietal occlusion of the tube with adhesions. You find a hernia or protrusion of the fimbriated extremity of the tube with the ovary fixed with a not yet complete veil of adhesion. These cases I have seen; but, with an enormous experience in extra-uterine pregnancy, I am willing to classify them all as tubal pregnancies and those that escape. The coroner in a case in this city found a beautiful amniotic sac floating around in the peritoneal cavity.

The case, of course, will be recorded, and then we will have data to speak of it. He found ruptured tubes, abdomen filled with blood, and patient dead. Rupture took place near the uterine extremity of the tube. I have a fashion in surgery of speaking of the subject from the surgical point of view and from the coroner's point of view—that is, the pavilion extremity of the tube belonging to the surgeon, and the uterine extremity belonging to the coroner. Those that hug the uterus closely belong in the hands of the coroner. If it takes place about the pavilion or distal extremity, they go into the hands of the surgeon. This I have demonstrated.

Dr. R. P. HARRIS: I have been arrested in my work for the last eight months, but of the cases I have been looking up, the woman has been alive and the child also. Of the last fourteen cases, thirteen women have recovered, and all of the children were alive. In a period

of seventy-eight years there were thirty operations, with twenty five women lost. Dr. August Martin, of Berlin, introduced the system of ligating and cutting with the removal of everything that was possible, and then a revolution was commenced. In the last nine years there have been forty-one operations reported, with thirty recoveries. There have been as high as eight operations recently in one year (1893), and out of the last fourteen cases reported, thirteen recovered.

Mr. Lawson Tait wanted to know why I had reported such a chapter of horrors, for in thirty operations there were twenty-five deaths. If he had known how to operate he should have saved his patient, but he simply performed the old operation, and the patient died in four days. Since the introduction of the new method two thirds of the cases operated on in the last nine years have recovered.

With regard to the children, there is a good deal of interest connected with them, because, although I have photographs of a number of them from fifteen years of age down to two, with no deformity in any particular, a very large proportion of the balance have an asymmetrical head, clubfoot, or some form of disability. I have hunted up seventy children to find out how many of them lived. Most of them did not survive beyond a few weeks or months. One Italian boy is fourteen years old ; one English girl, fifteen years old ; two in the south of Russia, two or three years old ; one boy going to school in Holland, eight years old ; they have nothing the matter with them. The one belonging to this country has an asymmetrical head, although now one can only tell this by feeling the head carefully ; the line of teeth of upper and lower jaw is perfect. The child is quite intelligent and very engaging, and is now three years of age. That is the only child living in this country. There was one in Pittsburg which lived four days, and one in Indianapolis which lived eight months. The three women are living. Out of four women operated upon in the last nine years, there is only one case in which the mother and child are both living, and that is in this city ; the case belongs to Dr. Mordecai Price ; but that operation was performed in the old way, not in the way that most of these new operations are performed. Where possible, everything is taken out, and where they have to do it, they take out cyst, uterus, ovaries, and tubes—everything to save life. When a man begins this operation he does not know what he is going to do, what he has to do, but must be as bold as a lion, ready for any emergency, or he won't save his patient. As far as this operation is concerned, an experienced operator once said : "I have done a Cæsearean section, but it is mere child's play to the other operation."

Dr. STEWART: I simply want to help Dr. Wilson out in regard to neglect of child. I can see how a case put in the hands of a student and then brought to the hospital might make the operator overlook the fact of making a critical examination. I remember a case in which I helped Dr. Wilson's father. Dr. Agnew and Prof. Wallace were prime movers in the diagnosis of the case, notwithstanding all the experience we had, of which Dr. Agnew, particularly, had more than I at that time. This occurred several years ago. The case was one which in every respect resembled a case of extra-uterine fœtation. The projection was on the right iliac side. When I called Dr. Agnew in he said he was sure he could feel the elbow of the fœtus in the abdominal wall. We fixed the time for the operation and made the announcement to the expectant mother that she was in this condition, although, as suggested by Dr. Agnew, we let her alone for a while. I called on Dr. Agnew again at the time she should be delivered, and we agreed to work together and see what could be done to relieve her. We postponed operation until the gentlemen would come and meet us in a few hours. While we were waiting for Prof. Wallace and Dr. Wilson to meet us labor set in, and I delivered the woman in the presence of the three gentlemen.

Dr. W. REYNOLDS WILSON: The remarks of Dr. Harris are very appropriate as to the new and the old methods in this operation. The old method as he describes it would have been perfectly impossible, as the amniotic area was so distinctly adherent to all the intestines. The only way in which it could have been got rid of would have been by drainage. The chances of saving the woman were slim; the hæmorrhage was very extensive, and the source in the chorionic tissue made it impossible to stop it.

*Report of Four Cases of Pelvic Abscess following Labor.*

By L. J. HAMMOND, M. D.

(See page 591.)

DISCUSSION.

Dr. C. P. NOBLE: This contribution brings up the general question of dealing with these bad cases. Dr. Hammond is to be congratulated that only one out of four died. I think also he will agree that were it possible to have reached those abscesses in the two cases in which he simply washed and drained from above, it would have been much simpler and better for the patients to have had the pus

run out of the vagina than to have opened the abdomen as he did. Operating from above, the doctor was wise not to attempt to do more. Under such conditions it is best to open the abscess, do as little as possible, put in a drainage-tube, and try to get the patients over their desperate condition. I would ask him whether it would have been feasible to have reached the abscesses through the vagina. In that case the patients would have been spared the prostration of abdominal incision.

Dr. J. PRICE : The last case has a point of real interest in the discussion of just how you shall attack pus. For instance, one abscess was anterior to the broad ligament on the right side, the other posterior to the broad ligament on the left side. It is just in that mixed group of cases that the errors occur. One abscess is incised and the other remains, and the patient suffers on and dies of sepsis. It is just that group of cases I refer to. We so often meet incomplete and abandoned cases, and it is the group of cases that really give the mortality. It is not the question of diagnosis so much. There is nothing so easy as mapping out a mass as large as an orange or walnut or goose-egg on the right or on the left ; it might be a suppurating dermoid of the right or a suppurating mass of tube and ovary only, but the tube may contain as many as six or seven pus sacs. The treatment, while palliative in a large measure, was successful, and in the fourth case multiple abscesses were evacuated by Dr. Hammond ; but he admits that the procedure was incomplete because the patient was moribund. The mistake he made was to delay. Had he operated earlier the case would have been more promising. To play battledoor and shuttlecock with multiple abscesses is an error. It is a matter of diagnosis, a matter of pathology. If you can make the diagnosis, the surgery is very simple. Take all the traumatic forms of abscess, cachexia yields to irrigation and drainage.

Post-puerperal conditions of sepsis with black, angry-looking tubes not charged with pus, should not be touched. Removal of these appendages for post-puerperal sepsis is about always fatal, but a thorough irrigation, if you find muddy fluid and lymph, will save if drainage is well placed.

Dr. G. BETTON MASSEY : I would suggest that possibly if the last case had been opened by the vagina there might have been 100 per cent. of success in Dr. Hammond's cases instead of 75 per cent., if percentages can be reckoned on such small numbers. I might add that this talk about multiple abscesses might be better elucidated. I fail to see how multiple abscess can occur primarily where it is due to an in-

fect ed pus tube. A pus tube is but one cavity, and I submit that it is difficult to prove that there is no communication between several portions of the abscess, though they seem to be separately situated when due to an origin of that sort. The channels of communication may be small, and they might not show if the opening is made above, which is against gravity, though permitting easy drainage if the opening is made downward into the vagina. So it seems to me that these four cases are a beautiful illustration of the early talk of the evening, and possibly a very favorable showing of a treatment which reverses the natural laws of both phagocytosis and hydraulics.

Dr. HAMMOND: In reply to the question of Dr. Noble, I would say that in future I intend always to evacuate these abscesses through the vagina when the conditions are as clear as they were in the second case. I think in that case the results would have been the same with much less surgical intervention, if drainage had been established through the vagina.

In regard to Dr. Price's question of early operation upon the last case, I agree with him entirely that these cases can not be operated upon too early, for when I saw the woman I did not think she would live ten minutes. I told the doctor I thought it would be unwise to interfere with a woman who was dying. It was only because she seemed to improve slightly after that time that I thought we could afford to wait a short time longer. If I had really known she had multiple abscesses, which is very difficult to determine, I think I would have operated at once. It was from general peritonitis that the woman had received the greatest shock. There was extensive bowel adhesions and all the evidences of peritonitis. It was a very unfavorable case indeed.

Official Transactions.

FRANK M. TALLEY, *Secretary.*

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## OBSTETRICS.

## AMERICAN.

*The Best Method to teach Obstetrics* (Author's Abstract).

J. CLIFTON EDGAR (*Am. Acad. of Medicine*, Atlanta, May 4, 1896), in his introduction to the elaborate scheme of instruction here elucidated, recalls the statements as to the necessity for reform in haphazard didactic lectures on this branch of medicine so universally prevalent a decade since. The student was taught the art of obstetrics; the science of midwifery was a sealed book to him; and the world was the sufferer thereby. While this condition has not entirely changed, the lengthened courses and modern methods of instruction, establishment of new lying-in hospitals, and the opening of them to the student in his collegiate course, has removed much of the reproach richly deserved ten years ago. Now, there are in New York city six medical schools which require that each student shall have attended at least six cases of confinement before graduation, where no such condition and no opportunity of fulfilling it previously existed, and five institutions devoted to lying-in cases whose wards are open for obstetric teaching. Throughout the country, however, the older condition very generally prevails.

The best method of teaching obstetrics is a combined one. The student should acquire a working knowledge of the science before applying himself to the art of midwifery. The subject should not be taken up until his second year, after courses in anatomy and physiology. His ideas as to the size, shape, and position in space of the female pelvic organs, as well as their histological anatomy, should be clear and crystallized. After this, the student's work should be so systematized as to turn him out at the end of three years more, if not an accomplished, at least a competent *accoucheur*. Some definite plan must be adopted to this end, and experience has taught that the method embraced in the four following divisions, taken up in the order named, is the best:

I. *Systematic Biweekly or Triweekly Recitations during the Second College Year*.—An effort is being made to supplant the old didactic lecture with these recitations, which are made as real and interesting as possible to the student by abundant illustration. The means of illustration are readily attainable, and consist of pelves (entire and in

section), models, wet and dry preparations, obstetrical instruments, and plenty of blackboard space. The class should not exceed twenty, and each individual should have his task assigned to him, a portion (five) of the section taking the blackboard, another the specimens, a third the models, and a fourth being quizzed while waiting. A sufficient time at the end of the hour is reserved to go over the work of the divisions. Among the wet specimens are placentæ with membranes and ova, embryos and fœtuses, uteri with decidua; among the dry, placentæ injected through the vessels. Of the models, sagittal sections of the pelvis, mounted on a blackboard so as to allow of being fixed in any plane, is most useful. As illustrations of the branches taught in this way may be mentioned pelvic deformity, malposition, the causes and methods of delivery.

II. (1) *Demonstrations and Manikin Work*; (2) *Attendance upon Obstetric Clinics*; (3) *Laboratory Work during the Third Collegiate Year*.—The instructor should be a demonstrator of obstetrics, and his department should consist of a combined museum, manikin, and recitation room furnished with all the aids to teaching in this line. The class should not exceed thirty. (1) Biweekly or triweekly meetings for six or eight weeks will pretty thoroughly cover the ground so far as demonstration and manikin work goes. A review of the theoretical work of the second year should be given a practical application. The whole section should be occupied as before. Three or four manikins, fœtuses, puppets, placentæ, pelves, and models must be constantly at hand to demonstrate the parturient canal with its curves, cervical dilatation, size and shape of the uterus at various stages, rupture and repair of them, etc. These are to be viewed as auxiliaries merely, and care should be taken that no misconception arises. This is the time or opportunity given the student to render himself expert in the use of his knowledge. An occasional demonstration of the diagnosis of pregnancy on the living subject should be made. (2) Attendance at an obstetric clinic will be of service in fixing the student's theoretical work and demonstration, and, if possible, he should watch the delivery of several cases. If he can take his maternity service now, so much the better. (3) Special opportunity to study advanced pathology, bacteriology, and embryology should be provided for the student. Advanced research is best undertaken in vacation intervals, owing to press of other work.

III. *Resident Service in a Maternity Hospital which shall include* (1) *Examination of Pregnancy under Competent Instructors*; *Actual Delivery by the Student Himself under Rigid Supervision in both*, (2) *In-*

door Service and (3) "Outdoor" or Polyclinic Service; Attendance on the (4) Obstetric Clinics of the Hospital, (5) Theoretical Lectures (Illustrative in Character), and (6) Recitations on the Practical Work performed.—The patient should not only witness but actually confine the patients, always under the eye of an instructor. His first observations in the hospital should be in the examination and care of pregnancy carried out with minute detail, relating to labor, puerperium, and newborn children. The principles of obstetrical cleanliness should be thoroughly inculcated. (2) After examining several pregnant women, the student may be allowed to confine cases under supervision in the wards, the future care of the cases being assigned to him. (3) The Out-Patient Service may now be opened to him, and its advantages are really greater, for he is thrown to some extent on his own resources, being practically in charge of the case. (4) Each delivery may in the maternity be made the occasion for an obstetric clinic, all the steps in the management of labor and operations in interference being explained. (5-6) Little time will be left for theoretical lecture and for recitation, but, if introduced, they should bear on the work in hand.

IV. *Theoretical or Didactic Lectures on Advanced Obstetrics.*—There is still a place for this form of instruction. The course should be given in the fourth year, and cover abortion, puerperal infection, extra-uterine gestation, etc. Fifteen minutes of each hour should be given up to recitation on the preceding lecture.

The author concludes his paper with an earnest plea that obstetrics be not regarded as a specialty, but as an integral part of medicine and surgery, covering a part of both fields and linking them more closely together, and claims that this fact should be brought home to the student on every possible occasion. His views are supported by a number of apt illustrations—toxæmia, glycosuria in the field of medicine, dilatation, curettage in that of surgery. Treatment of them falls to the obstetrician only because of his peculiar skill, not because the surgeon and physician are not equally competent to cope with them.

#### SPAIN.

*Childbirth during Intestinal Auto-infection, continued during Puerperium; complicated by Gangrene of One Lung and Double Phlegmasia Alba Dolens; Recovery.*

PONCIANO IBÁÑEZ Y DÍAZ, of Madrid (*Anal. de Obstet., Gin. y Ped.*, February, 1896), reports the case of a primipara, aged twenty-two, ad-

mitted to hospital in labor at term. The cervix dilated duly and the presentation normal vertex; but the woman's general condition was alarming; pulse 110, temperature high (not taken), vomiting, diarrhœa, sordes on the teeth, typhoid state. The labor progressed naturally, and terminated in twenty-four hours by natural delivery of a healthy child. Patient's condition continued about the same. Temperature,  $38.7^{\circ}$  to  $30^{\circ}$  C. Diarrhœa and tympanites. Lochia normal. No pelvic disease could be found. Intra-uterine douches of a 1-to-5,000 mercuric solution were given. Stimulants were given freely, and liquid diet. The diagnosis of intestinal infection of a typhoid character, commencing before labor, was made. By the beginning of the third week of the fever the woman developed pain in her right side. On examination, an area of consolidation was found over the lower left lobe of her right lung behind. Temperature,  $40^{\circ}$  C. Cough developed with a dark chocolate-colored sputa of very offensive odor, indicating gangrene of the lung. This was probably of embolic origin from the intestinal tract. Chills and sweats supervened, the temperature ranging from  $37^{\circ}$  to  $41^{\circ}$  C. The treatment consisted of inhalation of spirits of turpentine and a thymol solution. Blisters were applied over the affected lung. Internally intestinal antiseptics were given. Baths of fifteen minutes' duration were given for the hyperæmia. Two weeks later the temperature began to decline, the odor of the sputa decreased, and the physical signs showed less pulmonary consolidation. The improvement continued until, at the end of two weeks more, the temperature was normal and the lung performed its function like the other. As the patient began to move about the ward she was taken with pain in both her legs below the knees, which was attended by swelling and fever. Temperature,  $30^{\circ}$  C. This developed into a double phlegmasia alba dolens. The woman was kept at rest, and appropriate treatment instituted for twenty-five days more before the condition subsided. From this on, her recovery was uninterrupted. The last complication is also attributed to embolism from the intestinal tract, by the author of the paper.

## FRANCE.

*Extra-uterine Pregnancy and Hæmatocœle.*

PAUL REYNIER (*Semaine gyn.*, February 11, 1896) considers the presence of a unilateral tumor of the appendages in a woman who has not menstruated recently, together with some of the concomitant symptoms of pregnancy and an intermittent scanty sanguineous flow

as *presumptive* of ectopic gestation. These symptoms may occur up to the fifth month. In case of rupture of the sac we meet with either the danger of a peritoneal inundation or of a hæmorrhage about to be encysted—viz., a common hæmatocele. These intraperitoneal hæmorrhages are more frequent than we are led to believe. Laparotomy is the only safe resource for the control of these peritoneal inundations. In hæmatocele the tumor is lateral, the posterior *cul-de-sac* is more invaded, and the uterus less movable than in unruptured ectopic gestation. There is also a peculiar sensation of resistance and often of fluctuation in hæmatocele. These conditions, taken in connection with the aforesaid presumptive symptoms of pregnancy, and with the later symptoms of rupture, such as pain, syncope, pallor, etc., confirm the diagnosis of hæmatocele, but whether the hæmatocele is inhabited or not it is impossible to say. This uncertainty renders laparotomy preferable to vaginal incision, as it secures better opportunity to control hæmorrhage, to clear all pockets of clots, and render the peritoneal cavity aseptic. In the vaginal method the removal of the fœtus and placenta is difficult, owing to lack of room and ability to reach all pockets. In suppurative hæmatocele the vaginal incision is to be preferred.

*Treatment of Puerperal Septicæmia by Anti-streptococcic Serum.*

CH. VINAY, Lyons (*Lyon médicale*, January 26, 1896), considers that puerperal septicæmia may be successfully treated by serum therapy. For his experiments he was able to obtain only the serum of a horse immunized against diphtheria by means of filtered cultures of streptococci. The serum obtained by Marmorek's method—that is, from animals immunized by injections of increasingly virulent *complete* cultures—he considers to have a yet greater bactericidal power. He reports four cases as follows :

CASE I was of puerperal septicæmia in a multipara following abortion at two and a half months. The abortion occurred on September 7th ; upon the 11th the patient had a chill, malaise, vomiting, thirst, and a rise of temperature, which by evening reached 40° C. Treatment : Quinine and intra-uterine lavage. The author saw the case first on September 15th. She was then in a condition of profound septicæmia ; the uterus was tender, but there was no peritonitis and nothing in the fornices. Temperature, A. M., 39.8° ; P. M., 40.6° C. An intra-uterine injection of a four-tenths-per-cent. solution of iodine was given. The temperature on the 16th remained the same. The uterus was then curetted, cauterized with five-per-cent. carbolic acid, and



tamponed with iodoform gauze. On the 17th the local condition was improved but the general state remained the same. The pulse was 124; temperature, 40.8° C. At 6.30 P. M. twenty cubic centimetres of anti-streptococcic serum were injected. The following night the patient slept, and on the morning of the 18th the temperature had fallen 2° and the pulse to 100. A second injection (twenty cubic centimetres) was given. On the 19th the general condition was so much improved that no injection was given. Temperature between 38° C. and 39°. On the 20th, the temperature rising to 39.3°, a third injection was given (twenty cubic centimetres). The injections seemed to be followed by slight diarrhœa. From this time the general state remained good; there was a return of the fever, however, with the development of a mass attached to the left tube. Iliac laparotomy (October 7th) and drainage were followed by rapid recovery. In this case, while it is true that inasmuch as an operation became necessary the cure was not completed by the injections, it is probable that without them the case would have had a rapidly fatal termination.

CASE II occurred in a primipara at term. The pelvis was contracted, urine albuminous; the amniotic sac ruptured early, after which the patient walked to the hospital. Two days later (November 8th) labor was completed with forceps; the vagina was much torn. On the following days there was a remittent temperature, and intra-uterine injections were employed. On the 13th the general condition was good, but there were abdominal pains and the lochia was fœtid. On the morning of the 16th the temperature suddenly rose to 40.6° C. There was no chill, no malaise, no peritonitis, nothing in the breasts; pulse 120. Evening temperature, 40.2° C. Twenty cubic centimetres of the serum were injected. Temperature at midnight, 39° C. November 17th, temperature, A. M., 39.5° C.; P. M., 39.4° C.; general condition good; a second injection of serum (twenty cubic centimetres). During the following days the temperature declined. Upon the 21st it rose to 39.2° C., and fifteen cubic centimetres of serum were injected, after which there was only slight evening pyrexia. The patient was well on the 25th. In this case were found many of the conditions favoring infection; the complications appeared to proceed, however, more from the vagina and cervix than from the uterus itself. Her recovery, while possible without the injections, was hastened thereby.

CASE III, a multipara, had a normal labor, but was seized on the third or fourth day with a chill, general malaise, and delirium. The author saw her first on the twenty-second day of her puerperium, when she was in a grave septic condition complicated by rheumatism

in the metacarpo-phalangeal articulations of the right hand and in the left shoulder of eight days' standing. The uterus was large, not painful; there was no peritonitis; nothing in the fornices; there was slight diarrhœa, enlarged liver and spleen, and congestion at base of right lung; temperature,  $40.5^{\circ}\text{C}$ .; pulse, 90. Fifteen cubic centimetres of serum were injected. At 5 A. M., the following day, the temperature had fallen to  $39^{\circ}\text{C}$ ., but rose at 9 A. M. to  $39.5^{\circ}\text{C}$ . Thirty cubic centimetres were injected. The third day (of treatment) there was no change, and on the fourth death occurred. The autopsy showed a fatty liver, diffuent spleen, and degeneration of kidney epithelium. The uterus weighed one hundred and eighty grammes; the placental site was thick, rough, odorless. The heart showed parietal endocarditis of the right side and of the tricuspid valve, especially upon its auricular surface; there were vegetations, but too small to interfere with its function. The bases of the lungs were congested and a few healed tubercles and pleural adhesions were found at right apex. All else was normal. The results of serum therapy in this case were *nil*, as might have been expected from the lateness of its exhibition, when general septicæmia was far advanced, with degeneration of all the organs. At an earlier date the treatment would have been particularly applicable to this case.

CASE IV was a primipara, unmarried, whose mother had been insane. Labor was difficult, and followed by some sepsis, which, however, had disappeared when she was admitted to the hospital, twenty-three days after confinement, in a condition of puerperal melancholia. With the idea that this was a case of septic action on the brain, one hundred and eighty cubic centimetres of serum were injected during twelve days, but there was only a slight temporary improvement in the melancholia, which relapsed and showed a tendency to chronicity, when the case was transferred. During the treatment an erythematous eruption was observed upon the trunk and limbs which speedily disappeared.

In conclusion, the author says that the infrequency of cases of puerperal septicæmia limits our investigations in any particular line of treatment. The fall of temperature and amelioration of the general condition in the first two cases reported seem to depend closely on the exhibition of the serum. Regarding the last two cases, while the serum may be all-powerful against recent infection of the blood, it is inefficacious against once-established organic lesions. It is in instances of the former that the serum is indicated, and it should be administered at the time when the blood is invaded by the toxins of

the streptococci and by the streptococci themselves. This treatment must not be employed alone, especially at the beginning, and should not exclude local treatment of the infected mucous membranes. First suppress the original process, then fight the systemic infection. Furthermore, anti-streptococcic serum is not efficacious in those forms of puerperal septicæmia due to other bacteria than the streptococcus. The ideal method of studying these cases would be to make cultures from the cervix in each case, using the serum only in such cases as are thus shown to depend upon the streptococcus. This, however, implies loss of time; in general, also, the most serious infections are due to the streptococcus, and if we have chills and a rise of temperature to 40° C., we may assume, almost with certainty, the presence of the streptococcus. It seems best to use the injections in the evening, when their effect will increase the spontaneous fall of temperature. Serum therapy, to be efficacious, must be exhibited during the early period of general infection, and supplemented by the usual local treatment.

AUSTRO-HUNGARY.

*Successful Laparotomy for Extra-uterine Pregnancy, with  
a Living Child.*

ADOLF REISMANN, of Budapest (*Cent. Gyn.*, January 4, 1896), reports the case of a IIIpara aged thirty years. Her two previous deliveries were normal. The present pregnancy began December 22, 1894; life was felt June 15, 1895. During the third month of her gestation she suddenly swooned, complaining of severe pain in her right iliac region; afterward she noticed a swelling in that location as large as an egg. Micturition was frequent and painful. This attack was accompanied by some fever. She entered a city hospital and remained quiet for eighteen days, when her pains ceased and the swelling disappeared; from this on she suffered no inconvenience until September 19th, when she was taken with labor pains and admitted to the hospital under the observation of the writer.

On external examination, a tripartite tumor was felt, the central portion being on the left side of the abdomen and rising above the umbilicus, with clear, rounded outlines as large as a child's head, showing intermittent contractions. To the left was a second portion, much softer, extending higher. To the right a third portion, a much larger and elastic tumor, filling completely the right half of the abdomen up to the ribs, also possessing intermittent contractions, but to

a less degree. A loud flowing murmur was heard, limited to the median line. To the left, and on a line with the umbilicus, the foetal heart sounds were heard distinctly. Vaginal examination revealed the vagina obstructed by a bulging mass from Douglas' *cul-de-sac*, which filled the posterior half of the pelvis; in front of this, the anterior lip of the cervix was felt pushed upward and forward above the pubis. The median contractile tumor was found to be the uterus pushed forward and upward by the tumor behind it. The conclusion reached was: First, pregnancy; second, the uterus isolated from the tumor; third, the foetus situated not in the uterus but in the tumor. As the period of gestation was near term, and the foetus living, we had had to deal with a case of *abdominal* pregnancy at term. According to Werth, this condition is to be considered as a malignant neoplasm and should be removed. The opinion of most authorities is that we should wait for the death of the foetus to lessen the risk of hæmorrhage, but recent statistics show that the results obtained before the death of the foetus are nearly as good as afterward. In this particular case labor was instituted, and the chances were that delay would be dangerous to the mother, consequently it was decided to operate at once, which was done by Prof. Tauffer. On opening the abdomen, the sac was found behind the uterus, extending into the pelvis; the right half of the sac was covered by the right broad ligament, greatly increased in vascularity; the left half by peritoneal bands which extended up to the fundus uteri; anteriorly by the uterus itself; and behind by the sacrum and vertebral column.

The sac was opened on the left above the uterus, and the foetus extracted alive. It occupied an oblique position, with the breech to the right and upward, the head being wedged between the vertebral column and uterus. After extraction there was a free hæmorrhage. The placenta and membranes were quickly separated and removed. They were attached to the uterus in front, the sacrum behind, as well as the peritonæum of Douglas' pouch. To control the hæmorrhage, the right broad ligament was removed first, then the right ovarian and uterine arteries were ligated. As the bleeding continued freely from the posterior wall of the uterus, the uterus was removed, the left ovarian and uterine vessels being first ligated, and the cavity drained by gauze into the vagina, the abdominal wall was closed. The operation lasted an hour and three quarters, under ether anæsthesia. The patient rallied promptly. Her temperature did not rise above 38.9° C. The gauze was removed on the second day, and the abdominal sutures on the seventh day. A thrombotic process

that started in her left lower leg kept her in bed until the thirty-fourth day. She left the hospital with her living child on the fifty-eighth day after the operation. The child was a female, forty-five centimetres long and weighed 2,600 grammes. Cephalic circumference, 34.5 centimetres. The skull was dolicho-cephalic, and showed an arcuate depression on the posterior part of the frontal bone and the anterior portion of the parietal bone, right side. The right ocular fissure was wider than the left, and the right angle of the mouth lower than the left. The right upper extremity was flexed at the elbow to a right angle, positive and rigid; the right hand was flexed inward and to the ulnar side; the four fingers were strongly flexed across the thumb. The right lower extremity was rotated inward and bent at the knee joint to an obtuse angle; the right foot was in equino-varus, and the toes hyperextended. The head was flexed constantly to the right and drawn backward. The right sterno-cleido-mastoid muscle was hardly to be felt, while the left was prominent and thick. If the head was forcibly turned to the left it would turn back to the right when released. The child was fed on sterilized milk, and improved in general tone, but the contraction of arm, leg, and neck persisted. The power of motion of the arm was observed, but with athetosis-like movement. It was concluded that the paralysis was due to cerebral spastic hemiplegia from compression of the skull in its cramped situation, the seat being in the central convolutions. In two months improvement in the child was but slight. At the time the mother left the hospital it had gained but five hundred grammes in weight.

(T. W. CLEVELAND.)

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## THE STATUS OF GYNÆCOLOGY ABROAD.

### GERMANY.

#### *Difficult Labor following Vagino-fixation.*

Dr. W. RÜHL (*Cent. für Gyn.*, February 8, 1896) thinks that the difficulties attending parturition after vagino-fixation have been exaggerated.

The author has performed vagino-fixation two hundred and thirty-five times and is well satisfied with the results. He had the opportunity to observe ten cases that subsequently became pregnant and



were delivered at term. Of this number, seven were delivered naturally and three by podalic version, with favorable results to mothers and children.

The chief obstacle to delivery, in the opinion of the author, is the tense, hard anterior lip of the cervix which is prevented from dilating. Delivery can be made easy by incising the ring that is formed by this unyielding tissue, as shown by the report of two cases. He sums up his experience as follows :

1. In a large majority of cases spontaneous delivery occurs.
2. In a few cases, according to the condition of the indurated ring, version or perforation will be required.
3. Rarely and in more difficult cases incision of the cervix, proportionate to the induration, will be required.

The difficulty in parturition can usually be avoided by the proper performance of the operation—the fundus uteri. Of the thirty-seven cases of vagino-fixation, performed by the author, three have become pregnant. Two of these had been performed through the unopened vesico-uterine fold. One aborted in the fourth month; the other was delivered at term normally. In the third case the fold had been opened and the uterus attached directly to the vagina. In this case the result was a typical “vagino-fixation delivery.” Before pregnancy it was noted that the fixation was unusually firm.

When labor began the following points were noted: The uterine tumor rose above the umbilicus only a hand's breadth, but was remarkably long in its transverse diameter, reaching on both sides to the posterior axillary line. The fœtus was in the oblique position; the head above the right ilium. The anterior vaginal wall was drawn upward behind the symphysis, forming a concavity, the extreme limit of which could scarcely be reached. The cervix was pulled out of the true pelvis; the anterior lip felt tense and œdematous, while of the posterior nothing but a narrow ridge could be felt. Notwithstanding the strong labor pains little progress was made. The os dilated very slowly and seemed to lie still higher in the pelvis. On account of the enormous distention of the posterior wall of the uterus it was thought advisable to perform version. This was accordingly done by the Braxton-Hicks method, but with great difficulty because of the inaccessibility of the cervix.

The woman was then delivered of a living child.

In order to determine the exact condition, the uterus was examined by touch bimanually immediately after delivery. The anterior wall was tense and somewhat thickened. The posterior wall was very

much attenuated but intact. There was no sign of a posterior labium and no posterior vaginal vault.

The uterus was still firmly adherent to the anterior wall. As will be seen, the tension on the posterior uterine wall was very great. The attachment of the anterior wall to the vagina held the fundus firmly and prevented its rising in the pelvis, and for this reason the anterior uterine wall could take but little part in the formation of the foetal sac.

Delivery, if left to Nature, would have been very difficult and dangerous. It would have resulted either in rupture of the posterior uterine wall, or the uterus would have become free from its attachment.

*Complications of Pregnancy and Parturition following Vagino-fixation of the Uterus.*

E. WERTHEIM (*Cent. für. Gyn.*, January 11, 1896), to those cases previously reported by Strassmann, Dührssen, Graefe, and others, adds one that came under his observation. In the case of Dührssen, a myoma had been removed from the anterior uterine wall by vaginal cœliotomy and the uterus fixed by vagina. She became impregnated, and at full term labor began. The cervix was found above the linea innominata, pulled far backward and to the right. The cord was prolapsed, the foetus dead, and shoulder presenting. Version was unsuccessful because the cervix could not be made to dilate sufficiently, and the parts could not be brought down into the pelvis. A Poirro operation was then performed. It was found that the foetal sac had developed almost entirely from the right and posterior wall of the uterus. The right ovary was on top of the uterus, while the left broad ligament was on a level with the os internum. The patient died soon after the operation.

In Strassmann's case a favorable result was obtained by the prompt performance of version.

In Graefe's case Cæsarean operation was performed.

The fundus should never be fixed. The author has devised a special method for the performance of this operation which will shortly be published.

*Treatment of Malignant Neoplasms with Erysipelas Toxines.*

F. KOCH, Berlin (*Deutsch. med. Wochenschrift*, February 13, 1896), reports four cases of malignant tumors treated with erysipelas toxine by Wolff. The preparation used is that of Coley, in which the bacillus

prodigiosus is added two weeks before the bacteria are killed. The cases are as follows:

CASE I was a woman, aged fifty-four, who had a carcinoma of the upper jaw. Resection of the bone was done, and six months later recurrence happened below the lower jaw, which was also resected and the tumor removed. Early recurrence in several points rendered further operation useless. One month after the last operation injections were begun. There was no reaction; there seemed some recedence of the tumor masses, and the surface became clean. Improvement was only temporary, and the patient died in less than two months after the institution of the treatment.

CASE II was a woman of fifty years, with an inoperable carcinoma of the corpus uteri. The uterus was greatly enlarged; there was no demarcation; there was an ichorous flow. Six injections were given in one month, each followed by a chill in from thirty to sixty minutes; fever ( $39^{\circ}$  C.) for a few hours, and pains in the thighs. After the last injection an eczema appeared on the thighs. The carcinoma was absolutely unaffected and treatment was suspended. Death occurred a few months later.

CASE III was a girl, thirteen years old, with fibro-sarcoma of the upper thigh. Tumor was firm; the cutaneous veins over it were swollen; hip was flexed at 120 degrees. Operation was refused. The patient received during three months and a half twenty injections. Each was followed within three quarters of an hour by a chill and a rise of temperature to  $39^{\circ}$  or  $40^{\circ}$ , always declining within eight hours. After four weeks the tumor became softer, the net of veins paler, and the mobility of the hip was slightly increased. This occurred during the first half of the time of treatment, after which there was no further improvement. The case was discharged at the end of three months and a half, since which time she has grown rapidly worse.

CASE IV was a man, forty-seven years of age, upon whom a thyroidectomy for carcinoma had been performed two months and a half before. During one month he received nine injections, each followed by chill and fever, and also by great exhaustion, which lasted sometimes until the third day. The tumor gradually increased in size, and death occurred a few weeks later.

Thus in only one case was there any even temporary improvement. Coley has employed doses of twice or even thrice the quantity of serum used in the above cases, which were hardly fitted for large doses. He has observed the same general reaction, though never the exhaustion or the eczema. His better results may depend partly upon the

fact that the majority of his cases were sarcomata ; in only two of the eight carcinomata which he treated was there much improvement. Friedrich has obtained slight improvement in some cases of sarcoma ; none in carcinoma. Lauenstein, in a case of uterine carcinoma, and Krönlein, in a case of pelvic carcinoma, noted no real benefit.

We may conclude that some favorable action takes place upon sarcomata, but we can not say how great or how permanent this action is. Upon carcinomata there is even less effect. At all events, this treatment is suited only for inoperable cases ; in such, carefully selected, it may at least cause temporary retrogression of the neoplasm and thus prolong the patient's life.

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## PÆDIATRICS.

### AMERICAN.

#### *Hysteria in Children.*

J. N. UPSHUR (*Virginia Medical Monthly*, March, 1896) says that hysteria is much more common in children than is supposed, many nervous ailments of childhood which are found difficult to relieve belonging to this category. Girls are affected more often than boys. The semi-volitional motive of deception is usually absent in children, but it is necessary that the child shall be sufficiently developed to appreciate good or evil as affected by its environment. The disease before puberty is comparatively abortive ; the phenomena may be grave, but are of narrower range. The *causes* are predisposing and exciting. The former are heredity—alcoholism in the father, exhaustion from any cause, anæmia during convalescence from acute disease, very trifling accidents, overindulgence, climate, the example of neurotic parents, ill-ventilated schoolrooms and overstudy, the too early development of a child's mental and social life, irregular hours, and improper food ; also various conditions of the sexual system : uncleanliness ; irritation of a long prepuce (leading to masturbation) in boys ; leucorrhœa from worms or acrid urine in girls ; impure conversation. Mimicry may be a cause. Traumatism may cause a purely nervous terror, or secondarily, after injury has healed, hysterical disability or pain. No *pathological* changes of hysteria itself can be demonstrated. Blocq says there is imperfect development of the cerebral centers, resulting in

lowered inhibitory action. The *symptoms* may be *sensory*, *motor*, or *psychica*!. The sensory may include perversions of the special senses—vaso-motor, secretory, and miscellaneous—*i. e.*, vomiting, phantom tumors, mimicry of acute diseases. In children these symptoms are either involuntary or well-marked deceptions. They are not long continued. The motor symptoms may be convulsions, local spasms, as chorea, tremor, or some form of paresis, contracture, simulated spinal disease, etc. The psychical phenomena manifest themselves as moral insanity, mimicry, hystero-epilepsy, hystero-catalepsy, trance, etc. Almost any grouping of nervous symptoms may be observed. The *agnosis* is not more difficult than in adults, but the disease is more likely to be overlooked. Do not discuss the case before the child. We have to determine whether there is associated organic disease. Hysteria marks or simulates many affections, but these imitations are never perfect. Especially difficult is it to distinguish between hysteria and epilepsy; the former may terminate in the latter. Hysterical attacks may be nocturnal. In paretic cases we may demonstrate voluntary power by distracting the child's attention or by faradism; then also genuine paresis has marks of organic origin. Spasm or contracture disappears under chloroform or during sleep. The *prognosis* is good, as a rule, but relapses may occur. The *preventive treatment* is to be followed where heredity or bad surroundings would put us on our guard. It consists of good hygiene, regular food and habits, correct discipline, and avoidance of excitement. *Curative treatment* is directed toward improving the general health in every way. There is no routine treatment, but each case is to be studied. The usual tonics, nervines, and sedatives are valuable as indicated. The diet, digestion, and bowels must be regulated. Massage and gymnastics are useful. Isolation may be necessary in grave cases. Discipline should always be firm but kind. Convulsions may be treated by the cold douche, ether, chloroform, etc.

#### *A Tooth growing in the Nose.*

G. W. GRAHAM (*Charlotte Med. Jour.*, February, 1896) reports the case of a girl ten years of age who was brought to him to be treated for nasal catarrh from which she had suffered for more than a year. Eighteen months previously she had met with an accident which had knocked out one of her front teeth and otherwise injured her mouth, which bled profusely. The hæmorrhage was checked, and in a few days the wound healed. The tooth was not found. An examination of the nose showed one nostril to be in a healthy condition, while the



other was filled with a polypoid growth, beneath which there constantly oozed a watery liquid. After removing the excrescence in the usual way, the missing tooth was discovered firmly imbedded in the inferior turbinated bone. The tooth had been struck with such force as to drive it through the superior maxilla and bury it in the nasal bone, and there it had united with the parts and grown as though it were in its proper place. This tooth was extracted with great difficulty, and the recovery was rapid and uneventful.

GREAT BRITAIN.

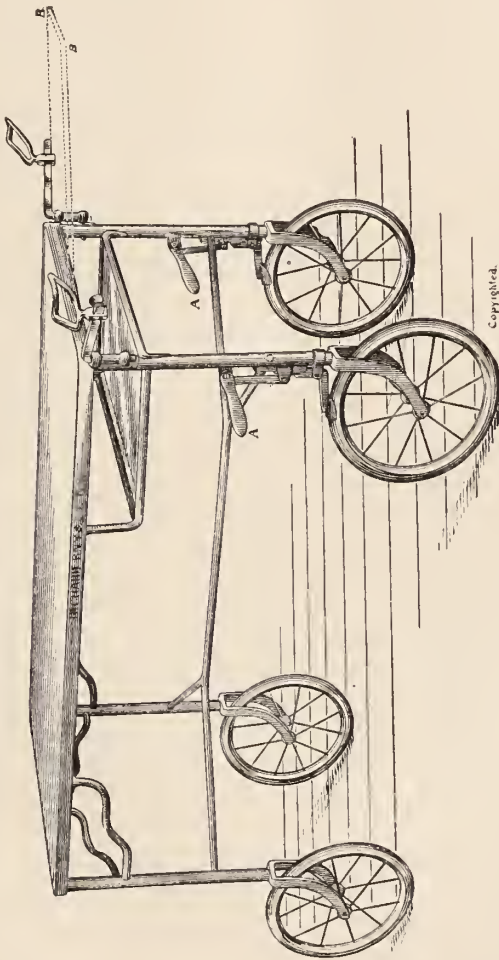
*Diabetes Mellitus in Early Infancy.*

W. B. BELL (*Edinburgh Med. Jour.*, February, 1896) reports the following case :

J. C., aged three months five days. Parents noticed that the child was very restless, suffered from a very intense thirst, and required a large quantity of fluid in addition to the breast. They also noticed some increase in the amount of urine, and that there was a good deal of cutaneous irritation around the genitalia and thighs. Occasionally the child was very drowsy, and his breath had a peculiar odor. The child was born as a face presentation, and the labor was protracted and difficult, but not instrumental. Parents both alive and healthy ; one sister healthy ; one aunt, on the father's side, died from diabetes mellitus. The patient is a well-nourished male child. Urine in excess, but amount not estimated or specific gravity ascertained. Clear and with a sweet taste. Contained a large amount of sugar by Fehling's, Moore's, and Johnson's tests. Marked weeping eczema of the privates and thighs, especially in the folds. Child fretful and restless. Breath normal, excessive thirst, bowels regular.

## NEW INSTRUMENT.

The following cut represents the newest thing in the way of a gynæcological table. It was designed especially for use in the Woman's Hospital by Dr. Victor E. Neesen, who is at present a



The Neesen Gynæcological Table.

member of the house staff there. The salient features of the table are thus described by Dr. Neesen :

"My primary object in designing the table was to secure quiet both to the patient on the table and to those whom it passed when in transit from the wards to the treatment or operating room. The old wooden tables which had been in use gave forth such a rattling and rumbling noise that many headaches and nervous attacks were attributed to that cause.

"My first idea was to construct a bicycle table—wheels having pneumatic tires and ball bearings. But estimates on the cost of building such a table made the idea impracticable. I then resorted to cushion tires, and the present table is supplied with them. The joints and swivels are carefully constructed, and the primary object is attained. Movements of the table are now made entirely without noise.

"After quiet in transportation was secured, the other features were added, with the object of producing as useful and convenient a table as possible for minor operations and treatment. Wood was abandoned entirely, and iron tubing and sheeting, enameled white, was used in its construction. Its appearance is therefore not only artistic, but, more important, it is as aseptic as a table can be made.

"The head end is an inch and a half lower than the buttock end, to facilitate examination and the entrance of light into the vagina. At this end an extension leaf is fastened, so that the patient may lie at full length if occasion requires.

"At the other end (buttock end) are extensible and adjustable stirrups fitted into the corners. They can be turned in out of the way, or removed.

"A heavy polished glass plate is fitted in a sliding frame, so as to pull out over the operator's lap, to serve as an instrument tray. A slide close under the top projects far enough to fully support the patient's legs and feet when in Sims' position.

"The wheels are all swiveled, so that the table can be pushed easily in any direction, and, when once placed in position, two brakes (A and A) can be applied to the rear wheels, holding them firmly and rendering the table immovable.

"Although primarily intended for hospital use, the table can serve as an office fixture either by reducing the size of the wheels or by having it made without them."

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## ITEMS OF INTEREST.

*The International Periodic Congress of Gynæcology and Obstetrics.*

President Vulliet died in the south of France after a short illness.

This unfortunate occurrence will not interrupt the organization of the coming meeting.

Pending the election of the new president by the permanent committee, the management of the Congress is being supervised by the vice-presidents, A. Reverdin and Jentzer, of Geneva.

The Congress will convene in Geneva on Tuesday morning, September 1, 1896, at the University Hall, and will be under the patronage of the Swiss Federal Council. Its first session will be opened by an address delivered by the President of Switzerland, and another by the Minister of Public Instructions of the Canton of Geneva. All arrangements are well under way, and the correspondence indicates a large attendance. The American Government has been officially requested by that of Switzerland to appoint federal delegations to represent this country. The national secretaries of the different countries are as follows: For France, M. Doleris, of Paris; for Germany, Doderlein, of Leipsic; for England, Leith Napier, of London; for America, Henrotin, of Chicago; for Austria and Hungary, Vavra, of Prague; for Russia, Fischer, of St. Petersburg; for Italy, La Torre, of Rome; for Belgium, Popelin, of Brussels; for Switzerland, Muret, of Lausanne; for Holland, Nyhoff, of Amsterdam; for Sweden, Westermarck, of Stockholm; for Norway, Christie, of Bergen; for Spain, Planellas, of Valencia; for Finland, Torngren, of Helsingfors; for Turkey, Chahbazian, of Constantinople; for Portugal, Silva Jones, of Lisbon. Further details will be published in our next issue.

Members of the Congress desirous of taking part in the discussions of the questions of the official programme are requested to inform the secretary before the 5th day of July, 1896, stating definitely the questions they desire to discuss.

Members desiring to present to the Congress original communications must forward a complete explanatory title of the same to the secretary before June 1, 1896.

Secretaries of national gynæcological and obstetrical organizations are requested to forward at the earliest possible date their lists of delegates.

Members intending to attend the Congress should secure steamer

berths at once, particularly for the return passage, which is the most difficult to obtain.

All information at hand will be cheerfully furnished by the American secretary, Fernand Henrotin, 353 Lasalle Avenue, Chicago, Ill.

*List of the American Members of the Congress.*—W. H. Baker, Baldy, Byford, Edebohls, Boldt, Dudley (Chicago), Etheridge, Dewees, Dudley (New York), Griffith, Engelmann, Gehrung, Kelly (Howard), Fenger, Kellogg, Mann, Henrotin, Lusk, McMurtry, Krug, Murphy, Polk, MacMonagle, Parvin, J. F. W. Ross, Noble, Pryor, Stevenson, Janvrin, Skene, Wood, Senn, Sutton, Gill Wylie, Tuholske, Penrose, A. McLaren, Ashton, Cumston, Baer, Reynolds, J. D. Emmet.

*In Memory of Dr. Charles Carroll Lee.*

The Directors of the Post-graduate Medical School and Hospital have named one of their wards in memory of the late Dr. Charles Carroll Lee, who was for many years a professor in the institution. They have placed a tablet in the ward, giving the names of those who combined to contribute the ten thousand dollars which were given for the purpose of the memorial. These names are as follows: Dr. Robert Abbe, Dr. L. Bolton Bangs, Mrs. James Beales, Dr. Stephen S. Burt, Miss Caldwell, Dr. Charles L. Dana, Dr. Bache McE. Emmet, Dr. George H. Fox, "A Friend," Dr. Horace T. Hanks, Mr. and Mrs. Eugene Kelly, Mr. and Mrs. Henry J. Lamarche, Dr. Daniel Lewis, Mr. and Mrs. William Lummis, Mr. and Mrs. Frank A. Otis, Dr. Clarence C. Rice, Mr. Eli K. Robinson, Mr. Nelson Robinson, Dr. D. B. St. John Roosa, Mrs. Eliza M. Sloan, Dr. Andrew H. Smith, Mrs. M. E. Sparks, Dr. Reynold W. Wilcox. It will be seen that the Faculty of the institution participated largely in the memorial gift.



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JUNE, 1896.

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THE CURE OF SEPTIC PELVIC DISEASES IN  
WOMEN.\*

BY FERNAND HENROTIN, M. D., CHICAGO, ILL.

A very large part of that which is practicable in the attainment of the purpose suggested by the above title having emanated from the sayings and doings of the gynæcologists of New York, it may seem presumptuous to address this Society upon such a subject. But there is still so much to be desired in the results usually obtained by the profession at large that your essayer appears before you with the greetings of the West, urging that you persevere in the work in which you have so long and so patiently labored, and presents this paper rather as an exhortation than with the belief that his humble effort can add to your knowledge. Dazzled by the brilliancy of the symptomatic cures obtained by the modern aseptic abdominal amputating radical methods, it seems evident to the rational, well-balanced observer that gynæcology has breathlessly rushed into treacherous depths, and that the magnificent records obtained by our experts have proved alluring temptations to the inexperienced and ambitious. Moreover, the every-day insights gained by modern methods of formerly unknown pathological conditions have solved many intricate problems and opened up possibilities of treatment of which we were ignorant. Every skilled gynæcologist of to-day, who was already in active work twenty-five years ago, can not fail to recognize the truthfulness of these remarks if he refreshes his memory and recalls the utter helplessness that followed his discovery at that time that his

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\* Read, by invitation, before the New York Obstetrical Society, March 17, 1896.

patient's uterus was fixed by adhesions. Certainly his agony was mitigated by his grand faith in the latest pattern of hot-water douche and the artful manner in which necessity has taught him to dodge the question of prognosis; but truthfulness insists upon the acknowledgment of the fact that at that date what was known of the means of cure and the character of morbid processes in pelvic septic diseases of women was most shadowy and uncertain. In the highest ethical sense, the term cure as applied to a local affection means the removal of the disease without the removal of the organ or organs affected by it, or at least without destroying or altering the particular physiological function which is characteristic of that particular organ. To amputate a limb for a tuberculous disease, for example, is not a cure in the highest sense of the word, because it destroys or impairs the physiological function of walking, and in the same sense of the word to remove a pelvic disease by removing the ovaries is not a cure. At least that is the manner in which we propose to treat the subject.

The question of treatment of septic pelvic diseases in women can not be condensed in a discourse of an hour, but we can select salient points, particularly those usually the subject of difference of opinion, not forgetting that we are only dealing to-night with methods that contemplate complete and perfect cure of patients with restoration of absolute physiological functions of perfect type.

Little need be said of inflammatory affections of the cervix *per se*. Surface infections are usually curable by simple means, while the hyperplastic forms are disposed of by plastic methods, notably amputation and the Emmet operation.

The importance, however, of taking cognizance of cervical lesion lies in the fact of their being frequently the initiatory step in the production of both uterine and peri-uterine disease.

Limiting ourselves for the present to the uterus, the next most common affection is the invasion of the cavity of that organ producing the condition commonly styled endometritis. The treatment of this difficulty has always presented so many disheartening failures that the presentation of the subject to any society always leads to the most enlivening discussion, as well as to the most dissenting opinions. It is most refreshing, however, to witness the pertinacity with which the subject is constantly being presented, and, no doubt, good will come of it all, for it represents the fact that our entire profession realizes the logical fact that in the cure of endometritis lies the keynote of success in the eradication of a very large proportion of septic troubles.

The cavity of an infected uterus, if curable, is only so by following

the same general surgical rules that govern the treatment of any infected cavity—namely, opening, cleaning, and draining. To gain the desired result, then, these conditions must obtain in all but in an infinitesimal number of cases. Just as we occasionally cure an abscess by aspirating, and it may be destroying or neutralizing the germ contents by a chemical agent, so it may be that rarely we may cure an endometritis by topical applications thrown into its cavity, but there is reason to believe that this seldom occurs. Usually the condition cures by reason of manipulations that are necessary for injecting, better drainage is established, and the fluid mechanically brushes out infected matter, or Nature manages gradually to establish cure by draining and purging itself. When we inject a closed tubercular cavity or joint with iodoform we are simply destroying a specific noxious element with a specific remedy, and the same with occasionally other forms of pus sacs containing so-called sterile pus; but how seldom we succeed in mixed infections, the conditions that hold good in the infected uterus. We then resort to the trinity mentioned above. We open, clean, and drain. Opening the uterus in gynæcology is called dilating, because the sphincter action of the lower uterine muscle prevents to a great extent the keeping of the cavity open. In all cases where dilatation is necessary, to use the words of one of your members, Dr. Pryor, “the functions of the cervical ganglia must be so obtunded as to prevent uterine contractions.” If necessary to obtain this result, the cervix must be incised. Make a straight cut through the posterior lip in the median line to the vaginal junction, the beginning of the incision being well up above the internal os, and growing deeper until it strikes the posterior fornix, the dilatation being continued, however, with care after the incision, so as not to tear open the posterior cellular spaces too much or open the peritoneal pouch, though such an event will not produce trouble, unless irrigation is employed and washes septic material into the general cavity, and, being unnoticed, no drainage is employed. The uterus must be cleansed, and the sharp curette is the most available instrument in our possession. We must use that even if reckless or clumsy fellows occasionally do harm with it. We can not always reach and remove all the diseased parts with it, I allow, but it is our best resource, and by using it carefully but thoroughly we do the best we can. Then wash out with plain water, and mop out as dry as possible by packing in a strip of gauze and withdrawing it. Then clean out with peroxide of hydrogen, the most searching disinfectant we have, this being done by soaking a strip of gauze in the peroxide and

pushing it lightly in the cornua of the uterus and packing the cavity lightly also, and then withdrawing it. Again introduce the dilator, to make sure of relaxation and good drainage, as well as escape of gas; pack thoroughly with gauze well saturated and tightly wrung out of a ten-per-cent. sterilized emulsion of iodoform in glycerin. An abdominal fistula coming from an infected ligature, when it does not communicate with a large abscess, can frequently be cured by a week or two of washing out with peroxide, followed in a few days by injections with iodoform emulsion, the ligature becoming re-encysted. Having seen this occur several times, the plan is suggested of disinfecting the cavity of the uterus in septic endometritis in the same manner at one sitting, the hydragogue effect of the glycerin being supposed to add to the drainage. Though personally not having used it sufficiently often to form definite conclusions, it is simply presented as a reasonable suggestion with the understanding that harm might come from evolving sufficient gas with the peroxide to penetrate too far into the tubes, and that colic or toxic effects might result from the use of the glycerin, none of which effects, however, have been noticed. This method may not be new, and it may provoke harm and may have to be relinquished, but, as this Society is composed of intelligent practitioners, no better place could be obtained in which to offer suggestions for treatment.

The vagina, in the disinfection of which very great care must be taken before, during, and after the operation, should be packed with iodoform gauze, and this vaginal gauze pack should be changed in twenty-four to forty-eight hours, and as frequently thereafter as necessary to prevent reinfection; for it is manifestly absurd to dilate, curette, and drain the uterus, taking away all dressings in three or four days and being content with carelessly ordering a vaginal douche, and reproducing the disease by vaginal infection when so much trouble has been taken with the operation. There is reason to believe that a reasonable number of cases fail to cure because within a few days the cervix is once more bathing in the same old vaginal microbial pool. The most explicit directions to the patient and nurse, or, better yet, if possible, the personal attention of the doctor to the perfect condition of the vagina for the four weeks following, is a matter of more importance than is generally supposed to the success of this really most important operation.

It will be noticed that this is a simple recital of the most ordinary methods as followed by many practitioners, and is given as a means of cure of a certain percentage of cases of endometritis.

I recognize that the gentlemen before me are not students, to be inflicted by such recital of the alphabet of gynæcology were it not intended as a categorical repetition of simple facts in the efficacy of which your essayer desires to acknowledge his belief as well as a standard from which the derivations must be frequent to insure success. Intelligent men who are not gynæcologists of routine will probably acknowledge that these methods will cure a certain number of cases of the common varieties of septic endometritis of not too long standing, no matter which form of infection may have produced the disease. A reasonable number of gonorrhœal and semi-chronic so-called catarrhal cases, and a large number of puerperal cases, if taken at the proper stage, can be cured in this way ; and these procedures, perfected in details by the experience of practice, will very probably succeed more frequently than any other method. To systematically describe to you all the varieties of uterine septic invasions and their symptoms, together with their respective treatments, would fill a book ; rather allow your attention to be drawn to some of the most flagrant mistakes made in following out stereotyped treatment. To take exceptions to dilating, curetting, and packing, by indulging in a denunciation of dirty patient and dirty doctor and dirty curette and dirty vagina, is no argument against a practice that is recognized by the profession as having cured, and does cure, many. We speak of a rational procedure based on good surgical principles and accomplished in true surgical manner. Such a procedure often fails because of misapplication. To curette a uterus in a woman because she has gonorrhœa, failing to recognize that the uterus is not invaded, is a serious mistake in diagnosis, and may introduce the virus into the very organ it is sought to protect, but does not militate against the fact that many women whose uteri have been invaded can be restored to health completely by this very means of treatment. That all women are not cured after curettage who suffer from specific endometritis is no argument against the treatment, unless it can be shown that as large a number are harmed ; and even then, no better substitute being offered, we still can hope to perfect the old methods. Ovariectomy formerly killed more persons than it cured. A misapplied agent is not necessarily a worthless one. A puerperal uterus large from advanced recent pregnancy, for example, calls for the greatest amount of discriminating diagnostic intelligence in the application of the required treatment.

To use a sharp curette in clearing out the *débris* when the thickened walls are affected with thrombo-phlebitis or lymph-thrombosis



would probably be striking the first match to a general conflagration. The smooth, dull curette, or, better yet, the finger, or the forcible stream of clean hot water or weak solution of creolin, is the way to safety, and yet six weeks later that very uterus, the thrombi having been absorbed and corporeal metritis having subsided, may absolutely demand the sharp curette to put an end to a secondary septic endometritis, an advancing microbial host again threatening its integrity, this time by way of direct penetration from the mucosa. Here is another illustration which demonstrates the most common form of the misapplication of a valuable agent. A woman develops a septic endometritis due to any form of micro-organism. The process is a slow one, not particularly virulent. Nature is on the alert, and closes the portals of the Fallopian tubes at their uterine ends. She throws out a protective wall within the substance of the uterus, and at variable distances back of the mucous lining. The whole difficulty is confined to the body of the uterus. Hyperplastic conditions prevail, hypertrophic connective-tissue development ensues, and in time we have an enlarged, completely sclerotic organ. The clinical picture is that of pelvic pains, with abundant purulent discharge and rather irregular profuse menstruation in the first stages. As the uterus becomes hyperplastic the leucorrhœa becomes thinner and more irritating and ichorous. The pains continue, but are more dull and reasonably bearable, and until atrophy begins the menses remain profuse. Sterility is, of course, absolute. The ovaries and tubes are normal as far as gross changes are concerned. Gradually, as years pass by, the process extends to the tubes and ovaries, but for years that woman, if left alone, will remain in good health; she will never develop pus tubes or ovarian abscesses. Most such patients are in very fair health and grow plethoric. The whole process is so slow that acute distress is not known, and the woman, barring the few symptoms described, considers herself well. We all see many such. It is Nature's cure. Some enterprising but not particularly discriminating gynæcologist, hearing her complain of a little backache, examines and discovers a large uterus. It feels heavy to the patient, and generally rests pretty well down in the pelvis. It is neither retroflexed nor ante flexed, because it is too stiff and hard to bend. Menses rather profuse; the patient feels better during menstruation. Our friend does not realize the density of the unfortunate uterus nor the thickness of its wall. Diagnosis: enlarged uterus, chronic inflammation, menorrhagia, and falling of the womb. Treatment: curette, etc. We all know of such cases. Some of you may understand how to cure them; if so, please publish

the how. Our colleague dilates and loses his breath at the exertion necessary to dilate, or rather to tear through, the cervix. After many efforts of physical strength he worries a curette into the uterus, and wonders how little there is to scrape out and how small the cavity is considering the size of the uterus. A small strip of gauze is cork-screwed into the organ and the lady goes to bed, develops a temperature, is nursed through a long fever, dies from pelvic abscess, or remains an invalid, or is obliged to have the ovaries and abscess removed, to bring on the atrophy that was coming about so nicely before she began to doctor. This is a true picture of the abuse and misapplication of a life-saving method of treatment.

We are told by some of our noted abdominal surgeons who do not stoop to the spoon, that the curette is a murderous weapon, responsible for many deaths. So is the knife to him who is ignorant, untrained, and without conscience—more so, for the sharper the tool the more danger. How much more they might accomplish if they took as much interest in the ideal physiological cure of women as they do in the perfection of abdominal work of the trenchant variety!

Every woman who comes to the operating table has been curetted. Of course she has. Ergo, the curette did the damage. Why she was curetted we wonder, but dare not say. Only a certain proportion are cured by dilating, curetting, and draining, because many are so operated on false indications; because the work is slovenly or imperfectly performed, which is no criticism to correct methods; because the shape of the uterus is such that all the parts of the mucous surface can not be reached; and, lastly, because no methods of diagnosis have yet enabled us to determine the exact limitation of the disease either beneath the endometrium or up the first portion of the tubes. We scrape many patients to whom we do no good, but if we do the work perfectly we seldom injure. What can be more satisfactory than the treatment of the interior of the uterus in septic puerperal cases of the proper type, or of the same procedure for the simple endometritis of the undeveloped uterus of the young, sterile wife, or of some forms of membranous dysmenorrhœa, or, if practiced very early, of many cases of gonorrhœa and other septic varieties?

The younger men, who are doing large general work and see many septic cases in their incipiency, and who have sufficient ambition in gynecology to learn clean proper methods, are doing magnificent work with the curette, and a great army of women who have had septic uterine trouble never get acquainted with the abdominal surgeon, because, as the boys say, "they don't have to."

To sum up the general rules that should govern the management of these cases, it may be said concerning the treatment of septic diseases confined to the uterus not calling for extreme radical treatment, that rational, sustaining, stimulating, gymnastic, dietetic, and alterative treatment, with the most careful attention to the condition of the excretory organs, may be the only means of value at our command in a certain proportion of very chronic cases, but that a very large number of women can be cured by properly managed local interference; that virtually all that is of value can be summed up in the intelligent application of the methods of opening, cleansing, and draining the uterus, and that the success of each individual will depend upon his discrimination in the application of these curative measures.

G. Bouilly is right when he says that the notion of pyosalpinx has become such a prominent one that it has forced back to second place the knowledge and study of other lesions, and that the discoveries of the operating table frequently forces a modification of the diagnosis which attributed all the symptoms to a diseased tube. Infection in the pelvis originates in a large majority of instances in the cervix or in the uterine cavity. It travels by way of the lymphatics or the veins, or spreads by contiguity along the mucous tracts to the peritoneal cavity, or directly penetrates the tissues irrespective of natural channels. The inroads of the infectious element is in proportion to its virulence and the resistance of the parts affected. Venous and lymph thrombosis, adhesive cohesion of affected parts, or effusion of exudate may arrest its march at any part of its progress. These different conditions may coexist in the same patient and produce disseminated disease hardly to be diagnosed in a distinct manner. Septic affection may be limited to the uterus, or it may by the routes mentioned reach any of the pelvic organs. Lymphatic invasion of the broad ligament of pure type is rare, but has been proved to exist without disease of tubes or ovaries.

Almost all authorities are now rallying to the opinion that many have gone too far in their crusade against the existence of pure cellulitis. Cellulitis from an infected thrombosis or the pure lymphangio-cellulitis does exist with or without tubal or ovarian trouble. I have seen the proof of this in operations several times, notably in one case that I saw operated in this city. The ovary is usually first involved; the tube becomes so later by direct penetration through its walls after it has become imbedded in the mass. Remember that it is not denied that most cases of tubal disease result from the direct infection along the mucous tract. Bouilly mentions a

very recent case in which he opened a phlegmon of the left broad ligament by an incision above the crural arch. A milder form of apparently the same difficulty existed on the right side which gradually subsided. Three months later the right side again began to give trouble, and a laparotomy discovered a large purulent ovarian sac, the right broad ligament the seat of an old indurated phlegmon, and the left side, which had been operated for suppuration three months before, cured and with healthy tube and ovary. Two years later this lady conceived and was delivered normally at full term.

Taking one short step further, I would acknowledge my belief that careful investigation in the future will demonstrate that an ovary can be the starting point to the *development* of an infection, and is so more frequently than we suppose. This is difficult to believe, and is only based on the fact that in several instances I have opened through the vagina apparently well-defined ovarian abscesses, when to the touch, and occasionally the sight, the tubes and broad ligament seemed normal. This would mean that the infectious element in the lymphatics to the ovary, finding a better pabulum for development in the ovarian, or rather peri-ovarian, tissue, would develop there primarily to the point of producing at least the first gross lesions before its presence could be noted in the broad ligament proper.

Another clinical form of trouble might be mentioned, and that is a low grade of pelvic peritonitis, with subdued symptoms and involving all the organs in adhesions, fixing the uterus in adherent retroversion, filling Douglas' pouch with adhesions, and by these producing alteration in nutrition of the organ, showing a tendency to the development of cystic ovaries.

These few remarks upon the pathogenesis of pelvic diseases seemed almost necessary to the introduction of the question of treatment, as will become evident.

The day that septic infection has reached beyond the bounds of the uterus, what can we do? According to the general methods prevalent at the present time, there is only one answer. If life is not apparently in danger, see your patient regularly, hypnotize her to the best of your ability, amuse her with poultices and hot douches, give her quinine as an antipyretic if her temperature goes up, or quinine as a tonic if it goes down, and tell her to have patience, and if she does not recover, when her tubes and ovaries are ready and ripe, yourself or one of your friends will remove them. If life seems in danger, let the organs go as soon as consent can be obtained. Sad outlook! Some—yes, many—cases recover and only very few die. Of

the many women brought to the operating table and operated, only a few would actually die in a manner that it would be said they die from the disease direct. But how few recover perfectly, except after passing through indefinite sufferings and repeated attacks, and when apparently well how many have perfect pelvic functions? When you find a patient with an exudative mass against the uterus, and that organ fixed, can any of you tell her whether she will be ill one month or ten years? When the word pelvic peritonitis is uttered loudly in an assembly of women several begin to shudder.

It seems horrible to contemplate removing the appendages at the outset of a disease, and yet it appears very very sad to wait, it may be for months, it may be for years, for Nature's cure, with the ever-present shadow of a future mutilating operation. Your reader has proposed a method, surgical though it be, but not involving the removal of any organ, as a first step in the future treatment of these diseases. In doing this let it be understood that no attempt is made to prove that a cure-all has been found, or that it is a universally applicable method, or that in itself it is even original. Its announcement consisted in the simple recital of personal experience, and venturing the hope that properly applied it might prove a great boon to suffering women, and that it would, moreover, tend most decidedly to a better knowledge of the different varieties of septic pelvic disorders and their respective treatment. The only originality claimed is that it is the first distinct announcement made of the curative value of such a procedure in the treatment of acute inflammatory affections as soon as the diagnosis is established. The dangers of the undertaking are so slight, and the benefit in some cases so striking, that it seems impossible to believe that in time it can hardly fail to prove a blessing. It will not cure every pelvic inflammation. What remedy or operation cures every disease having pernicious elements? It is only a question of time when it will have been proved what cases it will fail to cure and what patients are unfitted for its application.

The operation consists, as you know, in the simple incision of the posterior vaginal fornix and the drainage of the affected seat of trouble when it is reached. The explanation of the technique gives a better understanding of the method. An incision is made following the contour of the posterior face of the cervix at its vaginal junction, but not going too high at the sides to provoke hæmorrhage from the larger vessels. This incision is made by scissors, knife, or Paquelin cautery. When the indications point plainly to pus and long drainage, use the cautery, and the edges, being seared, will not show a tend-



ency to contract so quickly. From the center of this parallel to the axis of the vagina another incision is made of variable length to give free access. Of course the proximity of the rectum must be taken into account. Detach the retro-uterine connective tissue, always working against the posterior uterine surface. The uterus during the operation is held steady by downward moderate traction, the posterior or both lips of the cervix being held by a tenaculum. If you can determine the proximity of the peritoneal cavity, detach the tissues first in that direction. This penetration and detachment of the tissues is done with the finger, alternated, if desirable, with small nicks of the scissors. If working in dense tissues or infiltrated ones, occasionally withdraw the finger and look closely for the possible appearance of pus. If you have reached the peritonæum and have uncovered no pus, open the general cavity at once. This is very important. Almost the only source of danger in the operation results from neglecting this step. The reason is obvious. The manipulations may cause a leakage into the general cavity of pus from a fragile sac within. Even if you use but little force, the traction upon the uterus may do it. Pus into the dependent portion of the cavity does no harm if wiped out and drained. Retained pus without bounds will almost certainly kill. Moreover, it is a great advantage to explore the pelvis before doing anything further; therefore, if the cavity is open wash your hands, disinfect the vagina again by placing a gauze sponge in the wound and irrigating, and proceed to explore the pelvis from the inside, passing the volsella on the uterus to your assistant and using the left hand suprapubically the same as in bimanual examination, bidding the assistant to relax or increase the traction on the cervix as best suits your purpose. If you strike pus before the general cavity is opened you may follow it up, the hand placed above indicating the direction by marking out a mass, and the finger within seeking the way of least resistance and resilient tissue characteristic of exudate. If the finger penetrates a well-defined cavity of pus or sero-pus behind or to the sides of the uterus, and it is evident by bimanual palpation that this constitutes the whole disease, and, to be reasonably sure of this, the result of your examination now, minus the exit of pus, must correspond with the conditions found on examination of the patient while anæsthetized just before the operation, and you are quite certain you have not opened the general cavity, you may stop then, and, after introducing drainage and packing the vagina, the patient may be put to bed. If you have any doubts about these points, clean off the whole field thoroughly, clean the

vagina, clean your hands, put a little pack of gauze into the hole made by your fingers into the abscess, open the cavity of the peritonæum behind, wash the right hand again, and introduce one or two fingers again and explore from within. If nothing is found, drain Douglas' sac and place a good drain in the abscess cavity, and you will be safe. If the cavity is opened at first hand, before pus or abnormal tissue has been encountered, it may be that immediately on entering there will be a gush of bloody serum or sero-pus. In such case empty the containing cavity thoroughly, enlarging the opening if you desire, mop out with iodoform gauze, and then proceed to explore for further trouble. If nothing more can be found, simply drain the cavity. In these cases the intestines will usually be held aloof by more or less exudate, and careful consideration is necessary to determine whether or not to disturb further. If you have doubts, the tactile bimanual sense will indicate to you how to proceed. Do not hesitate, however, to insinuate the fingers between bowel and exudate, or in any direction that seems to be still thickened, making free to separate all adhesions in all directions; there is more danger in doing too little than overdoing, and with the finger guided by intelligent experience serious damage seldom occurs. It may be that you open the free cavity and nothing escapes. You now explore where you have before ascertained mischief exists. It may be extraperitoneal or intraperitoneal, or both. There may be a broad-ligament phlegmon without peritoneal communication. In such case there will be found a mass at the side bulging into the cavity, but easily nearer the tip of the finger thrust in the tissues in that direction, but outside of the peritonæum.

In such cases a large, wide strip of gauze, with string attached if you desire, is packed into Douglas' sac, carefully closing its opening, and the finger separates the tissues and penetrates the mass always beneath the peritonæum. If only exudate is found, it is thoroughly penetrated in all directions and drained, and then the protective gauze taken out of the peritoneal cavity and replaced by a simple gauze drain. A mass may be found on one or the other side evidently intraperitoneal. It may be a pyosalpinx or ovarian abscess, or tubo-ovarian collection, or an abscess in the free cavity welled off by exudate. Here the long gauze pad is arranged in such manner as to shut off to the best advantage the healthy side, the mass is penetrated, the pus, if any is present, is emptied, everything is wiped out, and the fingers reintroduced to explore, for, beware, there may be several pus cavities, and they must all be opened. An ovarian

abscess can sometimes be separated from adhesions and coaxed down very close to or into the opening, and there opened. In quite a number of cases, particularly those characterized by a posterior exudative mass, one can not individualize the different organs thoroughly. The finger penetrates exudate and separates adhesions, only feeling that he is in the peritoneal cavity, but not by any sense of having felt the peritonæum. These cases, of course, make him feel that he is doing blind work; but what matters it if, having opened and drained an abscess, you have not known exactly where that abscess was. Disentangle everything to the best of your ability; after having a few cases you will usually know where you are, and meanwhile you will cure the large majority of cases. In a reasonable portion of patients you will fail to find pus, and are met at the outset by a mass difficult to distinguish, but containing no liquid. These are intraperitoneal or extraperitoneal. When intraperitoneal it will soon be recognized that one is working the finger between intestinal folds glued together by exudate. When extraperitoneal, the fact can usually be established by the greater density of the tissues and the difficulty of getting very close to the opposing abdominal hand. A fibrino-plastic character of the disease does not prevent its absorption if thoroughly penetrated and drained. No fear need be entertained about going too far; the principle involved is that all parts of the inflamed area must be reached, and good and sufficient drainage established. If it can be determined that infection exists anterior to the uterus, an incision can also be made anterior to the cervix, and drainage established there. In all cases the operation is to be preceded by thorough and efficient dilating, curetting, and packing of the uterus. Though it has taken so long to explain all these details, performance of the operation is usually very short. After the uterus is curetted, it often requires only a few minutes to do the work in simple cases. If the procedures just described are in time proved as innocuous, as there is reason to believe, and their value receives the indorsement of our profession, in the near future, when a physician curettes the uterus and finds a suspiciously dense area in its proximity, he will simply make an incision as described and drain the infected area, thereby often aborting an extra-uterine disease in its very incipency. Regarding the drainage after the operation there is this to be said: The opening through the vaginal wall is usually the first to contract, and must be made to correspond to the character and peculiarities of the particular case.

If a large abscess is found, or much disturbance and breaking up

of adhesions has been necessary, surgical sense dictates the necessity of a large drainage tract, and the vaginal buttonhole may be increased. If Douglas' pouch dips backward to a sufficient extent to threaten obstruction, the post-vaginal structures must be incised sufficiently to make an easy descent, not forgetting, of course, the proximity of the rectum. One of the drawbacks of the drainage by gauze is the tenacity with which it adheres to contiguous parts when removed, and the pain renewal of the dressing gives the patient. This may to a great extent be obviated by draining with gauze wrung nearly dry after soaking in iodoform emulsion of glycerin—sterile, of course. Drainage is to be removed after different lengths of time, according to the variety of cases in which it has been used. If a serous effusion has been found in the *cul-de-sac*, and nothing else, in forty-eight hours the gauze is removed and a very small wick left in. Or, in such cases, the opening may be partially closed by sutures and only a wick left in from the beginning. If a large pus sac has been opened and much exudate is present, and no signs of retained secretions become evident, the packing may be left in four or five days and then removed. In fine, surgical experience is to guide the surgeon. Renewal of the dressing gives pain, and its frequency should be a matter of consideration.

Generally, after three or four dressings, the vaginal opening will remain patent long enough to allow the case to come to a successful close. A short, wide retractor, and two extra long ones, rather narrow, are of advantage, the first to retract the perinæum in making the primary incision, the last to push in the peritoneal cavity when one desires to look in and wipe out after the opening is made. Most of the manipulations in exploring and penetrating are made with all retractors withdrawn.

*Dangers and Drawbacks of the Operation—Hæmorrhage.*—In a number of cases hæmorrhage will be considerable. One of the causes is the failure to follow the exact middle of the uterus and getting away from the vessels at its side. This mistake is easily made, because the uterus is frequently pushed to one or the other side by a mass on the opposite side. Carefully noting the direction of the uterine canal in the preliminary curettage can obviate this mistake. The hæmorrhage from the vaginal vessels unavoidably incised is also often quite free, and particularly so in the bleeding from puerperal cases. As far as known, all hæmorrhage is controlled by packing of the drainage gauze.

*Fistula.*—In forty cases of my own, one recently returned;

operated over a year ago, with a fistula discharging pus from an abscess sac opened at that time, the patient, however, having since been in perfect health.

*Failures.*—CASE I.—Mrs. C., B—— Avenue, had been suffering for three or four weeks with acute pelvic inflammation of severe type, with excruciating pain. A mass fills the pelvis from side to side, perfectly immovable. Uterus not to be outlined further than the fornices. Evidently cellulitis, and what not above. Incision made in the usual manner. Immobility of mass made operation well-nigh impossible. It seemed as if the finger never would reach the cavity of the peritonæum. After penetrating the general cavity no exploration could be made, the tissues on either side being so thick and dense that headway could only be made by unwarranted force. Hæmorrhage very free. Operation very unsatisfactory. After penetrating in several directions, gauze drainage was placed and the patient put to bed, with the conviction that little or nothing had been gained. No reaction. Patient improved at times and then gradually relapsed. Laparotomy offered, but refused. Patient still ill, three months and a half now. Surgeon in charge says, “Mass on the left side can now be outlined distinct from the solid pelvic roof.” Apparently not harmed by operation. Surgeon reports, “She may be willing to submit to another operation the same as before.” This is a distinct and an undeniable failure. Probably not a proper case for this treatment.

CASE II.—Mrs. F. C. G., S—— P—— Avenue, puerperal case six weeks after confinement. Typical broad ligament. Phlegmon of right side. Expected to make inguino-crural incision, as mass seems adherent to anterior wall. When anæsthetized, thought it could be reached from below. Usual incision. Subperitoneal dissection between folds of broad ligament, no pus being encountered. Peritoneal cavity opened. Ovary could just be reached. Seemed enlarged, but consistent. Thinking patient would recover, nothing further was done. Absolutely no result.

Fever still continuing and mass still present.

*Partial Failure.*—CASE III.—Mrs. R., moderate mass, right side. Penetration of mass. Evacuation of slight semi-consistent pus exudate. Convalescence not well established. Irregular fever for three weeks. Gradual cure, patient being about in six weeks. Irregular menstruation and pelvic pains at menstrual time, but is about and apparently well since. Operation seven months ago. Opening in peritonæum not large enough. Gauze drainage not properly placed and not renewed often enough—only once on ac-



count of pain. This patient could have been cured promptly if operation had been done more skillfully. In contrast with these, thirty-six cures, some of them magnificent, for diseases that we know are so intractable. By cures I mean to say that the thirty-six cases recovered and resumed their ordinary methods of living and were free from symptoms sufficient to bring them back to their physicians. I will not venture to say that none of these have had or will not have return of trouble. I presume some will. I can only say that none have had relapses to my knowledge; a large number are still under observation to determine their future, and are known to remain well one to four years after the operation.

*An Ideal Case.*—Mrs. H., September, 1895, was taken with irregular and rather profuse uterine hæmorrhage with subdued pelvic pains; three weeks later had fever and took to bed. Twelve days later I operated, temperature having ranged from  $102^{\circ}$  to  $104^{\circ}$  the previous week. Usual incision. Penetration into general cavity. Left ovary normal. Right ovary as large as a large hen's egg. Adhesions slowly and carefully loosened; an enlarged ovary gradually worked down until presenting at the opening in the vaginal fornix unruptured. Incision through presenting part. Evacuation of two to three ounces of rich thick pus. No contamination of general cavity because of the protection of a long iodoform-gauze sponge placed in this prior to the evacuation. Cavity of ovary carefully sponged out and the organ replaced after being packed with a strip of iodoform gauze, the end of which is brought out of the vaginal opening.

Further cleansing of all the parts, further packing of Douglas' pouch. Temperature normal on fourth day and thereafter. Returns home after three weeks. Examination last week reveals no tumefaction in the pelvis. Slight induration of old point of incision. Uterus possibly a little enlarged yet, but perfectly movable. Has gained many pounds in flesh and is in perfect health. I forgot to mention the important pathological fact that the end of the tube was brought down and was absolutely perfect, the fimbriæ not showing the least appearance of infection, and a probe passed an inch and a half up its channel without obstruction. I grant you, it might have been a little safer to exsect that ovary for the future welfare of the patient, but, in view of the excellent result, the operator will be forgiven the sentiment that gives him the pride of saying, "Now the woman is well, and nothing was removed."

I might give you long recitals of interesting results obtained by this means, but having already encroached upon your patience and

stated at length the most important facts which I desired to bring to your attention, but little remains except to apologize for the length of this paper by saying that if but a mite has been added to perpetuating your interest in this matter, good will result. No particular priority or originality is claimed. These operations have been done from time immemorial by men in all countries. Pus sacs and infected areas have been incised, punctured, and penetrated by trocars and cautery, and scissors and knives, no doubt for ages passed. If any originality belongs to the work it is the enunciation of the principle that, "it having been proved that in the large majority of cases of para-uterine and peri-uterine septic diseases, ordinary medical means or simple local treatment is of little or no value, these demonstrations tend to accentuate the fact that such affections should be attacked from their incipiency in a surgical way, and that the proper method is in the adoption of the standard rule—cut, clean, and drain right from the beginning."

All cases may not be so cured; but tell me what surgical operations have shown better results in their early history? Much remains to be done in this line. Some few cases may be made worse, and some few not benefited, but the results of such procedures at the hands of experienced men will determine boundaries, and the discoveries unveiled in operating patients in this early stage of the disease is almost certain to bring about a perfection of symptomatic diagnosis that will in the future make infinitely more perfect the best methods of cure by making fine discrimination of cases possible. If a virulent fluid from an infected uterus finds its way into the general cavity before Nature has sealed the tube, the very first drop may seal the doom of the patient, and yet we know that if at the dependent portion of the cavity that drop found a drain, nothing more than a simple local evidence of trouble would result. The surgeons of the near future will learn to interpret symptoms and place his drain in time to avert many a calamity, and work in the direction which I have endeavored to point out may be of great assistance in reaching such ideal results. Unthinking and unknowing people sometimes complain of too much surgery, but the lessons learned by us of the great achievements of the past rather spurs us to do more, provided it is done well. This form of treatment is suggested for trial, with a presentation of the evidence of its apparent efficacy by your invited referee. Where better could it be presented for a verdict than from the Society that counts among its members Emmet, still on guard over the fate of cellulitis; or Mundé, or Thomas, who so frequently fought for vag-

inal incision ; or Polk, whose words for conservative work are still fresh to our memories ; or Pryor and many others here who have struggled so honestly to bring to gentle suffering women the greatest boon possible from gynæcology—namely, the cure of pelvic septic disease ?

Gentlemen of the New York Obstetrical Society, I thank you for your flattering invitation.

353 LA SALLE AVENUE.

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## A STUDY OF THE PATHOLOGICAL CONDITIONS OF THE PELVIS WHICH OUGHT TO BE AT- TACKED FROM THE VAGINA.\*

BY HORACE TRACY HANKS, M. D., NEW YORK.

The technique of vaginal hysterectomy has been carefully perfected by French, German, and American gynæcological surgeons during the past few years. It is doubtful, therefore, if many decided improvements in method can, or will be introduced in the near future. Our ability to make a more exact diagnosis of certain diseases requiring this operation may possibly be improved. The operation is well done here in our own city by many of our gynæcological surgeons. And in almost all the large cities of the United States, as well as on the Continent of Europe, are found those who believe in the operation, who recommend its performance, and who do the work rapidly and successfully.

The questions which confront us as gynæcological surgeons to-day are not, Can a vaginal hysterectomy be successfully performed ? nor Can pus tubes be successfully removed *per vaginam* ? The former question has been practically answered for more than *ten* years by all of us who have practiced vaginal hysterectomy for carcinoma uteri. The latter question has been answered affirmatively many times during the past *two* years by a host of American surgeons. And during the last year Jacobs has demonstrated in our presence, in a masterly manner, how rapidly and successfully it can be done. The real question, therefore, is, *When* shall we do a vaginal hysterectomy, and in what class of cases ?

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\* Read before the New York Obstetrical Society, April 7, 1896.

An effort to aid the younger men who may not have had as fair and full a chance as they could have desired before deciding upon the choice of operations, is my only excuse for preparing this paper. The violent opposition to the vaginal route, which has been manifested in certain cities in Europe and in the United States, has but made its advocates more careful in giving a reason for the faith that is in them. Had there not been good grounds for changing from the suprapubic to the vaginal route in certain cases, we here in the United States, would have avoided the lower and more difficult route, and we would most certainly have kept to our former suprapubic operation, which we all know so well how to perform.

There are a host of operators, both on the Continent of Europe and here in the United States, who can do as good abdominal surgery as they can ever hope to do vaginal surgery, who believe they are justified in changing, and have therefore changed their manner of operating from the upper to the lower route. In deciding on the character of a proposed operation, when one has to be performed, like deciding on the character of the anæsthetic to be used in major operations, the first consideration to weigh materially should be as to what is best for the patient, and not what is easiest for the surgeon, or what will be the most brilliant operation for the spectators to witness. With every conscientious surgeon it will be what is best for the patient. The question of selecting the operation to be performed for certain pelvic diseases ought never to be determined until the surgeon, after a careful study of many cases from his own experience and that of his friends, is willing to decide solely in the interest of his patient. To illustrate :

Dr. A. has removed successfully thirty simple unilocular ovarian tumors or thirty catarrhal tubes without a single death, while Dr. B. has removed, *per vaginam*, thirty small cancerous or fibroid uteri with no deaths. Shall Dr. A.'s conclusion that all pelvic diseases be operated upon from above, simply because his cases have done well, be accepted? or shall Dr. B.'s testimony be considered infallible, when he states that since he has performed thirty vaginal operations with no deaths, therefore all operations should be done from below? Such reasoning is far from satisfactory to a judicious mind. The real question still comes up daily to the best of operators, "Which is best for this particular patient?"

It makes but little difference which route you select in these simple, uncomplicated cases like Dr. A.'s and Dr. B.'s; either route will do if you are a good all-round surgeon. But when the bad cases

have to be considered—those which have troubled us most in operating from above, those cases of which, if we have them in large numbers, the best surgeons would expect a death-rate of five per cent when we operate from above, even when we operate in our very best manner, and our patients are in good condition and are to be well nursed, with the most satisfactory surroundings—here we must decide if the lower route will give the patient the better chance.

For example, during the last two years in the Woman's Hospital, the only two women who have died after I had operated on them suprapubically, strictly for diseased tubes and ovaries, were cases in which the adhesions were so firm about the rectum and in Douglas' pouch that the bowel was injured in both cases, and a portion of the necrotic gut of one case had to be resected. In this case there was so much disease in the uterus that I removed it also, and therefore I had free drainage. But this patient died of sepsis and shock. The other one was drained through Douglas' pouch without doing a hysterectomy. She died, not from shock, but from sepsis. Both of these cases are of a type which we are all compelled to meet and to operate upon daily. And for such cases we must decide what manner of operation will give them the best chances of recovery and future health.

It is possible, of course, and often consistent, for us to change the route we have decided upon at the request of the patient, as we know that many women really object to having a cicatrix above the pubes, and many of them know that a hernia, after an operation of this kind, is not an uncommon occurrence.

There is little necessity of considering the propriety of doing a vaginal operation when we know that we are capable of doing a quick and successful operation from above—as quick and as successful and as free from future complications as may be possible. Let us therefore consider at this time some of the important advantages of the vaginal operation :

1. There ought to be less shock (and such is the case), as the abdomen and its contents are far less exposed.
2. There ought to be better drainage, since there will be a normal outlet.
3. There ought to be no hernia. (There should be no hernia when operating from above if the surgeon follows the rules which good surgeons recognize to-day.)
4. There will be no scar to annoy the eye of the æsthetic subject, or to develop an ugly, painful keloid.



5. The cases which ought *always* to be attacked from the vagina can be done as quickly as from above by a good operator.

6. The bad cases, the really feeble women, can be relieved quickly by opening freely through Douglas' pouch and by irrigating and packing, when the patient could never survive a complete suprapubic operation. We were taught to do this operation by our teachers here in New York long before vaginal or suprapubic hysterectomy had become popularized.

7. There ought to be a shorter convalescence.

8. The peritonæum not being opened, there is less danger of injury to the bowels.

There are, of course, certain advantages for the suprapubic route; these advantages are acknowledged by the wise surgeon who works most frequently from below. And no surgeon can afford to ignore these advantages.

1. The eye can see and the hand can touch the disease more easily, and consequently it is possible to make a more complete and finished operation.

2. There is less decidedly hard labor in operating.

3. There is less danger of wounding the bladder.

4. The hæmorrhage is less dangerous, or it is more easily controlled, until one becomes *au fait* in vaginal operations.

The fact that a few operators, like Tait, or Jacobs, or Martin, or Bantock, or many of our best men, can do a certain operation which they have studied and perfected until they are really stars in this specialty, as much so as Patti and Kellogg ever were in the musical world—the fact that these surgeons do their work so successfully in their own particular manner is no argument necessarily why we should all believe that there is no other good way for a surgeon to do these particular operations. This fact is patent to most of us, however—viz., real surgical skill is required in doing a vaginal operation. Many a man has done a cœliotomy successfully simply because he has done just what his teacher has taught him to do. In other words, he is a successful imitator, not necessarily a good surgeon. A man who is to do successful pelvic work through the vagina must first perfect himself as a surgeon. And therefore he must operate on the cadaver if he would succeed in his first attempts on the living subject. The exact location of the ureters, the uterine arteries, the ovarian arteries, and the tubes can not be learned from illustrations in text-books, however elaborate, nor from simply watching the most dexterous operator. He only will be a safe operator who first perfects himself in the man-

ner above described. But, given a good surgeon, and one well qualified to operate from above or below, when should we choose the vaginal route?

There should be and there are certain patients with certain conditions who really ought to have an operation by the lower route, because we have found that these patients are more likely to survive, and finally to recover their former health with this operation. This reason is all-important, and the ever-present one.

The *first* class of cases are the difficult tube and ovary cases. They are the *bête noire* to me and to many of my most intimate friends in this department of work. We have all lost many cases, and we only save them now by the most careful surgical work. And without drainage a large percentage will die to-day. Now I am convinced, from my own experience in vaginal work, that we can save a larger number of this type of cases when we operate from below, and we give the patient a far better chance of quickly regaining perfect health. If a surgeon can do thirty cases of vaginal hysterectomy without a death, it is a good argument in favor of the operation. There are some here in New York who can do and have done this. I, myself, have lost but one in my first thirty cases, and they were not selected cases by any means. Several of them in my own practice, in fact, have been of this very type of suppurative pelvic disease, when the true pelvis was packed with the natural organs plus the exudate.

And thus I come to say that, after trying both methods of work—the suprapubic for over fifteen years and the vaginal for this class of pelvic disease for a little less than two years—I am prepared to recommend the latter route. There is, as we all know, in these very same pus-tube cases an absolute necessity for drainage. If we drain from above, it must be by glass tube or the Mikulicz gauze. And even with the greatest precision of operation, there has often been left a sinus into the abdomen. At the bottom of this sinus is often found a septic ligature. Possibly a more serious complication has resulted in the shape of a most annoying and repulsive fæcal fistula, and later still a ventral hernia. Thus with the very best surgeons there is always an element of danger in such cases over and above the immediate great danger from shock and sepsis. For myself, having recognized the gravity of this suprapubic operation when much enucleation is required to shell out the pus tubes about the rectum, I have for three years drained every case, which seemed to require drainage, through the bottom of Douglas' pouch into the vagina. My

cases have done better, and I have simply learned a lesson from Mother Nature, when she empties a pus tube through the uterus into the vagina, and quite as safely, thoroughly, and successfully empties a pelvic abscess directly into the vagina.

But when doing this modified suprapubic operation I did not fully grasp the grand idea which has been forced upon our notice during the last two years, since we have used the more perfect Jacobs retractors and have had more enthusiastic advocates. My experience in operating for grave pelvic diseases from above, and my success in draining through the vagina, made me an early convert to the vaginal method of operating in these diseases. I am certain now that many of my fatal cases in my earlier work would have resulted differently had I then been able to do the work as carefully from below as I did from above. The method of operation which will allow of the removal of the tubes and ovaries with the least injury to the rectum and ureters, and with the least shock, is the best. It is not a question of making the nicest surgical operation, the most surgically surgical operation, but it is a question of curing the greatest number of women by the least dangerous operation.

The fact has long been taught by Sims, Emmet, and Thomas, that a free opening from the vagina into a pus sac under the broad ligament has resulted in a complete cure to the patient, even though much if not all of the pyogenic membrane was allowed to remain. It is only necessary to remove the pus and whatever can safely be removed through the very free incision into Douglas' pouch, or under the broad ligament. The uterus should not be removed if the patient's weak condition will not allow it. But there should be a generous packing of iodoform gauze in the cavity after thorough irrigation. Nature soon forces all diseased septic tissue toward the proximate end of the sinus, and the exudation above and around the rectum is soon absorbed. The general condition of the patient is at once improved. As stated above, if she is exceedingly feeble only the pus sac need be opened at the first sitting. Later a complete hysterectomy can be performed.

My results from this operation, even though all the pyogenic membrane is not removed, have been most satisfactory. Nature helps more kindly and surely in ridding herself of septic matter than she does in the suprapubic operations, since drainage is free through the vagina.

To decide upon the gross condition in this class of pelvic diseases, the wise surgeon will always examine the parts most carefully while

the patient is under full ether narcosis, and I desire here and now to urge upon the younger surgeons, the great importance of an anæsthetic in such cases. Give ether and examine most thoroughly in the vagina and rectum, by palpation, conjoined palpation and percussion, with legs flexed and feet raised. And when the objective and subjective symptoms point to a pus disease involving tubes and ovaries, and closely adherent to the rectum, and when all the diseased tissue is in the true pelvis, we ought to operate from below. I believe in always removing the uterus with the diseased tubes and ovaries, when they are all more or less diseased and the patient's strength will allow. The argument for removing the uterus at this time is that its normal function is destroyed, and it is but little better than a foreign body. It certainly is quite likely to be a degenerative process. Occasionally—at least three times in my own experience—after the tubes and ovaries have been removed, the uterus became cancerous. In several other of my patients there has been decided endometritis, which required curettment. When operating from below for the pus cases, great caution must be taken to avoid injury to the rectum. We must judge by the character of the tissue and the location when we are approaching the rectum, and when near we must cease our enucleation, possibly before fully completing it, pack the cavity with gauze, and expect the patient to improve and recover. Such a careful operation does not injure the rectum. This has been proved time and again of late by others as well as myself.

To illustrate: On the 1st of January, in the Woman's Hospital, I had a patient, Mrs. S., suffering from pelvic disease. The true pelvis was filled with the pus tubes, uterus, rectum, and exudate. The uterus was firmly fixed in this exudate. She was constantly carrying a temperature of  $101^{\circ}$  to  $104^{\circ}$ . She had the regular exacerbations and remissions of fever which pointed to imperfect emptying of a pus sac. The husband and the patient had refused an operation up to January 21st, when they consented. On January 22d I did a vaginal operation, removing the uterus and left tube with some difficulty. The other side, far more dense, was not completely enucleated, as the patient had been very feeble for more than six weeks, and I did not dare to complete the operation as perfectly as I would have liked. Thorough irrigation and packing was practiced, the patient was better at once and has steadily improved, and now at date of this writing—January 28th, six days after the operation—she is out of danger, although there is much vaginal discharge. (At date of reading, I add that she was discharged from the hospital quite well; I have seen her

several times since, and the cure seems to be complete. Many other similar cases could be given if time would allow.)

Those of us who have tried both methods of operation for this condition believe the later method to be quicker and far safer.

The second class of cases which should be operated upon from the vagina are ovarian abscesses.

The opening through the posterior fornix is less dangerous, the abscess is reached more quickly, and the pus need never enter the abdominal cavity. The scissors, the finger, the curette, the irrigation, and the packing complete the work, and the cure follows. The diagnosis of these ovarian abscesses is not generally difficult. I have no additional rules to suggest that we may be absolutely certain that there is an ovarian abscess. But the fever for days, the tenderness in the ovarian region, the shape of the tumefaction, the marked though deep fluctuation in this locality, all point to the presence of pus. The rectal touch under ether narcosis, the palpation with the feet raised and thighs flexed, and with the uterus drawn downward, if need be, with volsella, convince us of the presence of pus, and we are often very sure that it is in the ovary. One patient has entered the Woman's Hospital within the last month with all these symptoms. The uterus was diseased, and an hysterectomy was done at the same time. She was discharged cured in exactly three weeks after the operation.

We all know how easily we have aspirated through the vagina these pus sacs in former days. It is almost as easy, and a far safer operation, to make a free incision, to irrigate and pack the sac. Nature comes to our aid here too. And even though all pyogenic membrane is not removed, the patient will be cured with proper care. The sinus must be kept open for a time when the pus sac will be entirely collapsed. Generally the tube also on this same side can be easily removed. Altogether we were never quite satisfied with some of our suprapubic operations for ovarian abscess. It was one of this class of cases in 1891 which gave me the inspiration to drain from the lowest point of the abscess cavity into the vagina.\* The ovary had become a typical ovarian abscess. It had rolled over under the edge of the broad ligament, and the abscess had developed in that position. The uterus, tubes, and this ovary had completely filled the true pelvis. After cutting through the abdominal wall I came down at once upon the bulging broad ligament. A slit through the broad ligament re-

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\* See paper in *Post-graduate*, No. 4, 1893, Counter-drainage after Cœliotomy.



vealed the thin white wall of the sac. With an aspirating needle the pus was quickly removed, and with the same aspirator the cavity thoroughly disinfected with antiseptic fluid. Then the abscess was opened with a bistoury, and a sharp-pointed pair of scissors was pushed directly downward into the vagina. Gauze was passed through this sinus into the vagina. The abscess cavity was loosely packed with the proximal end of this same strip of gauze. The slit in the upper portion of the abscess and broad ligament was closed with catgut suture. The result was most satisfactory, excepting that I had to enlarge the opening from the vagina into the abscess cavity later, in order to allow freer drainage.

The third class of cases would be unruptured tubal pregnancy and tubal pregnancy, when the rupture has been downward into the broad ligament and when *no violent hæmorrhage* is going on. Many of these latter patients slowly recover without an operation. We have all seen these cases, however, where slow hæmorrhage is going on and we have operated from above, and we have saved nearly all our patients. Still, if the operation is required at all, it is far easier to operate from the vagina. A free opening should be made through the posterior fornix and all blood clots quickly removed. The cavity should then be thoroughly irrigated, and with the two large retractors *in situ*, the patient being in a proper position, and with a good light, the bleeding artery should be seized with a delicate Tait forceps. All hæmorrhage is thus controlled at once. After irrigation the cavity is packed with gauze, while the pressure forceps remain *in situ*. The work can often be completed inside of twenty minutes. The patient will soon recover unless a very alarming hæmorrhage has occurred before or during the operation. Only with a good light and good retractors and good assistants should one undertake the operation however.

The fourth class of cases would be small ovarian and parovarian, movable cysts, and diseased, movable tubes and ovaries. The supra-pubic operation for this class of cases will always be resorted to, and successfully, by some good abdominal surgeons. Yet I firmly believe, from having done the vaginal operation for many small parovarian and three small ovarian cysts, that the vaginal route is always the better route for the all-round surgeon. It is easily done; it is quickly done; and there should never be any subsequent trouble. The uterus can be pushed up and kept in normal position by the gauze packing, which is a decided advantage in retroversion cases.

The fifth class of cases would be movable uteri with small fibroid

tumors, when in the true pelvis, and which seem to be the source of endless neuralgia, as well as worry and anxiety. When a hysterectomy is justified at all in these cases, we are justified in doing it *per vaginam*. To-day we know that there may be serious results following from a growing fibroid, over and above the dread and discomfort of having to carry about a large tumor. It is an indisputable clinical fact that it may cause more or less neuralgia, varying according to the site of the tumor. The tumor also causes frequent attacks of vertigo. These known clinical reasons, and the loss of faith in electricity or ergot, have led us to look to surgical aid in these cases, and we do not look in vain. We find that small tumors can be removed with the entire uterus *per vaginam* safely. It is a more severe operation for the patient when done from above, and this is the most weighty argument for taking the vaginal route.

The sixth class of cases which I believe we are justified in attacking from the vagina is the class which we have all for ten years been in the habit of treating *per vaginam*. I refer to the malignant diseases of the uterus. I would recommend that the uterus be removed *per vaginam* in every case where it ought to be removed at all if the vagina is not too small, and if there is no extension of the disease from the fundus uteri. We are, however, justified in removing the uterus, tubes, and ovaries from above when the disease has gone beyond the uterus and has invaded the adjacent structures in the pelvis. It is perhaps possible for the expert to do this work well in the vagina; but we ought to know that all the tissue which has become involved in the cancerous disease has been removed, whenever we do a major operation. We must therefore work from above, where thorough and careful inspection can be made at every step, and when, if need be, and as has been done by a member of this Society, all of the broad ligament has been dissected out.

Of course the rules which I have here formulated for the classification of cases do not cover all pathological conditions which may justify the vaginal operation, but they indicate the method of procedure in the conditions which have come under my own personal observation, in which I feel convinced that we ought to take the vaginal route. In certain other conditions, like the unruptured tubal pregnancy, like the small parovarian cyst, like the small pedunculated subperitoneal fibroid, the choice of operation may be made on other than purely surgical grounds, since no deaths ought ever to occur whichever route is selected. But even in these simple cases he who works from below well and easily will undoubtedly give his patients a

shorter convalescence and avoid accidents and blemishes which so often occur after the other operation.

I must not close, however, without giving my reasons for *avoiding* the vaginal route in certain tumors. For example, large fibroids and other solid tumors may possibly have dislocated the bladder or become adherent to the peritonæum in front, and possibly adherent, as we know is often the case, to some loop or loops of the large or small intestines. Such tumors should most certainly be attacked from above, because of these possible adhesions, and because the operation must of necessity be twice as long if done *per vaginam*. Nothing but the æsthetic fancy of the patient and her friends should ever make us waver from the abdominal operation in such cases.

And so, too, avoid the vaginal route in smaller fibroids which have at least an antero-posterior diameter of fully eleven centimetres ( $4\frac{1}{2}$  inches); and especially if there has been considerable perimetritis, since the uterus and tumor will in that case be quite firmly held at the brim of the pelvis. In such case the surgeon who works *per vaginam* works at great disadvantage, because of the absolute labor incident to the *morcellement* of so large and hard a tumor located so far from the ostium vaginæ. It is really as tedious to the surgeon as it is dangerous to the patient.

In ruptured tubal pregnancy, when much blood has escaped into the abdominal cavity, always operate from above.

In large ovarian tumors, where there are possible adhesions to the intestines and peritonæum, far from the vagina, and where possibly there may be other and even more dangerous and unexpected complications, the operation should be done from above.

A simple unilocular ovarian cyst can surely and safely, and possibly more quickly, be removed from above by a good operator than even the best surgeon can do it *per vaginam*. But in such cases we must elect the route after careful examination, and the choice must be made in the interest of the patient.

To recapitulate : If you are a well-equipped surgeon—

Do a vaginal operation—a vaginal hysterectomy, in fact—when practicable :

1. For a suppurative pelvic disease, if located in the true pelvis, when exudation covers and agglutinates the uterus, tubes, ovaries, and rectum.

2. For an ovarian abscesses.

3. For an unruptured tubal pregnancy, and for a ruptured tubal pregnancy in the broad ligament.

4. For a small ovarian and parovarian, movable cysts, and other small movable tumors.
5. For movable uteri, with small fibroids.
6. For carcinoma uteri when the uterus only is involved.

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SOME NOTEWORTHY HYSTERECTOMIES:  
A RETROSPECTIVE REVIEW.\*

BY H. G. WETHERILL, M. D., DENVER, COL.,

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The cases upon which this paper is based have been to me most instructive, and now that they are before me, grouped and classified, it is easy to glance down the list and recall the incidents of interest in each and to see, with the clearer vision distance gives, the group as a whole, and each case as it stands in relation to the others.

Those who do most abdominal work know best that unexpected conditions often present themselves, and that accidents and a certain mortality must of necessity accompany the work in the most skillful hands.

To operate only on selected and favorable cases is an injustice to the critical ones. What is apparently a most desperate case will often make a most gratifying recovery after operation, and that patient is entitled to receive the benefit of the doubt, regardless of the operator's desire to make a clean record.

With what are usually considered unfavorable cases, my habit is to state the case as it is, in my opinion, and the chances with or without operation, and then have the patient and family decide for themselves, without persuasion, what shall be done. By far the most gratifying cases of my whole experience have been the very desperate ones so treated, for they not uncommonly recovered after operation.

Do not fancy that the foregoing remarks are to prepare you to listen to a series of statistics for which apology must be made before the cases are presented. The mortality of this series is not high, and

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\* Read at the meeting of the Mercer District Medical Society, at Trenton, N. J., December 10, 1895.

taking into account the grave nature of the diseases for which the operations were done, the results are exceptionally good. It is because I am pleased with the results that I can the better afford to analyze my methods.

Around the operation of hysterectomy is clustered much of the gynæcological controversy of to-day. There are extreme advocates



CASE I.—Multiple fibroid of the uterus, weighing 14½ pounds.

and extreme opponents of hysterectomy, each with the assurance that he only is right, while the truth undoubtedly lies in the middle ground which neither occupies.

The extravagant surgical tendencies of the times have caused us to take steps which must of necessity be partly retraced, although it should meanwhile be remembered that the truest conservatism is often to be found in the most radical proceeding.

Indiscriminate hysterectomy in all cases where a fibroid tumor exists in a uterus, in all cases where it has become necessary to re-



move the ovaries and tubes for any cause, in all cases of prolapsus of the uterus of the third degree, and in all cases of suspicious erosion of the cervix, with hæmorrhage, will not be sanctioned by those gynecologists best qualified to express a valuable opinion, and will be openly and vigorously condemned by that large body of eminently practical men, the general practitioners.

The first five cases I have to report were cases with uterine fibroids. They were all operated upon by the supravaginal amputation method, in one of them the Kœberlé *serre-nœud* being used, the others having the arteries ligatured and the peritoneal flaps approximated over the stump of the cervix (Baer's operation). All recovered with the exception of Case III, and all those making recoveries were greatly improved as to symptoms and disability. One had some mental disturbance before operation which was not improved, and perhaps made worse.

The case treated by the *nœud* had an enormous multiple intraligamentous fibroid tumor, in which it was difficult to make a pedicle on which to place the wire. She had been taking morphine, had been a chronic invalid for years, with tremendously swollen legs and œdematous belly, unable to lie down day or night. She demanded operation for relief, knowing that the chances were all against recovery, as her belly had been previously opened by one of the best abdominal operators in this country, and the removal of the tumor abandoned.

This experience with the *serre nœud* was, however, my last, for soon after operating on this case I had the pleasure of seeing Dr. B. F. Baer do a hysterectomy with the ligature, and its advantages were so evident that I at once adopted it, and have continued to use it.

CASE III was also a large intraligamentous fibroid tumor. Its enucleation was very difficult, but was successfully accomplished, and the operation finished to my entire satisfaction. She came out of the ether well and did well for a day, when her pulse and temperature rose and she began to vomit brown froth and mucus: no gas or fæces could be passed from the rectum, and she died on the fourth day. No autopsy could be procured, and it was a question what caused the peristaltic paralysis, fæcal regurgitation, and subsequent death; but my present knowledge of these things leads me to believe that in some way a septic peritonitis must have developed, though I am unable to recall any fault in the preparation of the patient or the technique of the operation. However, the operation was done at

her home, and I take this occasion to repeat what I have said before—that in all such grave cases all the risks are greatly increased in opera-



CASE III.—Multiple intraligamentous uterine fibroid.

tions done at home over those done at a well-equipped and well-managed hospital.

CASE IV was a large fibroid tumor. The operation and convalescence were uneventful, except that she had some dribbling of urine beginning about three weeks after the operation. A silk ligature was found piercing the vault of the vagina and bladder. It must have been the one placed on the left uterine artery, which had taken in more tissue than was intended or necessary, and was now ulcerating its way out through the vagina. All dribbling ceased after its removal. The other fibroid cases made uneventful recoveries.

CASE VI was a woman who had been bleeding profusely for several days and was also profoundly septic, as the result of a self-induced abortion. The uterus had not been emptied, and she had great abdominal pain and distention, chills, fever, and sweats, and was very weak. Hysterectomy (supravaginal) was thought to offer her the only chance for recovery and was promptly done. No time was lost, no complications were encountered, excepting that it was difficult to satisfactorily place the ligatures upon the uterine arteries, as the tissues seemed soft and gave way in the grasp of the loops. She went from the operating room in fair condition, but soon collapsed, and died four hours after operation. At the autopsy she was found to

have had some secondary hæmorrhage from the right pedicle, which in her already bloodless condition she could not withstand. The uterus contained a putrid fœtus and placenta, and its walls were extremely soft and riddled with pus foci.

Hysterectomy for sepsis after labor and abortion has had a large mortality, and always must have. The grave character of the cases and the progress the disease is apt to have made before operation is likely to be considered, prejudice the prospect. It surely has a legitimate field, however, and its early performance will save some lives which must otherwise be lost.

CASES VII and VIII were also done by the supravaginal method. In both cases the uterus, tubes, and ovaries were bound down by dense adhesions; in one case a cyst of the left ovary, and in the other enormous tubal abscesses, complicated the work. Each uterus was enlarged and soft, and pouring into the vagina a free flow of pus known to be gonorrhœal in one case. Both cases recovered promptly and completely. The chances of recovery and subsequent comfort would not have been so good had I removed only the ovaries and tubes. One has only to glance into the pelvis after this supravaginal amputation to appreciate its advantages—*i. e.*, the removal of all the diseased organs and the smooth surface of peritonæum covering nearly all raw surfaces and pedicles.

Complete hysterectomy by cœliotomy was done three times, all the patients recovering. In one case in which the operation was done for cancer the disease reappeared in the right breast. She subsequently came into the hospital, and I removed this breast and the axillary glands. Another one had been long in bed, and was found to have densely adherent pus tubes and uterus with a fibroid tumor of the uterus and a suspicious erosion of the cervix. She was restored to perfect health, and gained rapidly in flesh and strength after complete hysterectomy.

Two complete vaginal hysterectomies deserve mention, one being done for cancer involving the base of the bladder as well as the cervix, and the other for cystic and prolapsed ovaries and a retroverted and badly lacerated uterus in a woman with a contracted pelvis.

In the first of these cases it was necessary to remove about two square inches of the base of the bladder to completely remove all diseased tissue; the resulting vesico-vaginal fistula was closed at a subsequent operation, as was also an old complete tear of the perinæum which extended well above the rectal sphincter. She recovered perfect control of the urine and fæces, and has had no return of her

cancer, though more than two years have elapsed since the hysterectomy was performed.

The second case made it necessary to choose between an oöphorectomy by cœliotomy with repair of the cervix, or complete removal of the uterus and appendages by the vagina. The vaginal operation was chosen for the reason that it seemed the safer and better. In this case the radical operation was the more conservative, and I am sure gave results no other could have done. This patient recovered promptly and completely, notwithstanding an accident in the removal of the gauze drain through the vault of the vagina. A loop of small intestine which had become attached to the gauze was drawn down into the vagina, and had to be detached and replaced. Aside from a rise of temperature, no ill effects followed.

The patient had had two very difficult instrumental deliveries of dead babies, her pelvis was contracted, and the lesions in the ovaries and uterus, taken together with her history of almost total disability for work or recreation, made conditions which fully warranted the procedure adopted.

Now let me go rapidly over the list and deduct the lessons from each of these cases.

CASES I, VI, VIII, and XII were desperate—all cases with the probabilities greatly against success. Of those, one case (VII) died. It is a question whether she would not have recovered had she not suffered from the secondary hæmorrhage. Case I was a brilliant triumph of modern scientific surgery, and teaches that none of us are infallible; that when one abdominal surgeon closes up the belly and abandons a tumor, another may at a later time and under other circumstances successfully accomplish its removal.

CASE XII demonstrates what can be done by bold and truly conservative work. The removal of the uterus would have done little good had the disease not been followed up and the base of the bladder excised. The secondary plastic work in this case was perfectly successful and satisfactory, and up to the present time there has been no return of the disease, though more than two years have elapsed.

CASE VIII was a dreadfully ill woman, and operation seemed scarcely to be worth considering, but, as it offered the only chance for her life, and she desired it (after a statement of the case), it was done. The tubes and ovaries were disorganized and blended into two extensive abscess sacs, the pelvis was packed with lymph and exudate, and the uterus was enlarged, soft, and boggy. She was emaciated to a dreadful degree and saturated with sepsis. After operation she began

to improve at once; the next day after her operation her temperature went down to  $99.2^{\circ}$ , though it had not been below  $101^{\circ}$  for many days before, and it did not subsequently get up to  $100^{\circ}$ . Her convalescence was without pain or disturbance, and her only complaint was that she was hungry, which was not remarkable, as she had eaten almost nothing for weeks.

This case and Case X (also a pus case) convinced me of one important point I had long believed to be true as to drainage, and the risk of peritonitis after operation. In both of these cases the peritonæum was soiled at the time of the operation with the foul, stinking pus, notwithstanding the careful placing of a gauze dam to guard against it.

The pus was simply wiped away, and no irrigation and no drainage used. No infection occurred; in fact, the convalescence was unusually free from pain and disturbance.

When the peritonæum has been subjected to periodical leakage of pus, as in these cases, there is, in my opinion, an acquired immunity to serious infection, and irrigation and drainage are unnecessary, for even virulent pus can be taken care of by this trained membrane. If abdominal surgeons will recall, or look up, their cases of post-operative peritonitis, I believe they will find them to have happened in most instances when no pus was to be found—in ventro-fixation, fibroids, ectopic gestation, etc. These remarks apply as well to recurrent appendicitis with abscess, where I have observed like conditions.

Therefore the examination of pus microscopically, to settle the question of drainage, seems to me as unnecessary as it is unwieldy. In my opinion, the use of tubes for abdominal drainage is irrational and unnecessary, and the use of gauze *for drainage purposes only* is just as unreasonable.

This case then confirms my opinion about the conservatism of Nature's processes, and what she can do in the way of recuperation if you but give her a chance.

The dusky, lusterless, and congested peritonæum one finds in most of these pus cases is not easily inflamed, and its absorptive powers are so impaired, and such a degree of immunity has been established, that tolerance and protection are assured to a wonderful extent.

The most satisfactory way to treat them is to wall off the field of operation with a gauze dam, for the protection of the adjoining tissues, and the absorption of the overflow, then wipe away any pus that may have passed the dam and close the wound.



Of these four unpromising and desperate cases, three recovered and one died, a proportion of recoveries calculated to stimulate one's desire to do his best for each individual case and let his statistics show what they may.

Case II reaffirms the well-known fact that the form of insanity which is often associated with uterine fibroid is rarely cured, or may be made worse by the operation of hysterectomy, or, in fact, any other surgical interference. If operations are done in these cases, it is well to inform the family of this danger.

Case IV teaches that the ligature of the uterine artery must be placed with great care to avoid penetrating the bladder and vagina. Stone in the bladder, with a silk ligature as a nucleus, has followed this accident. My method of placing the ligatures was entirely changed after this occurrence. Now let us make some comparisons of these various methods of doing hysterectomy, and see what conclusions these varied cases lead to.

First, all but a very few of the more prominent gynecologists of the world have abandoned the use of the *nœud*, rubber ligature, and clamp for what, in their opinion, is some better method of hæmorrhage; that leaves us the supravaginal amputation (Baer's method) and the total hysterectomy by *cœliotomy* or by the vagina for comparison and comment.

That conditions occur in which either of these methods would be the operation of choice is, of course, true. This series of cases aptly illustrates that point, but there are distinct advantages and disadvantages about each which must be borne in mind.

Baer's method is easier of accomplishment than total hysterectomy by *cœliotomy*, it can be done in less time, and, where there is no distinct reason for the removal of the cervix (as in cancer), it is a decided advantage, and no disadvantage to leave it. As Baer has said, it acts as the keystone of the arch of the vagina and prevents much subsequent mischief. The point of great importance in my opinion, and the one which has been too little dwelt upon, is the preservation of a normal vagina. Perhaps the point most strongly impressed upon me in this lot of cases was the shallow, and ever-growing shallower, vagina after complete hysterectomy, vaginal or by *cœliotomy*. This is a most important point in the consideration of this question, and for a married woman, or one likely to marry, only the most urgent reasons should determine for the practical obliteration of this canal. Other things being equal, I would certainly choose the Baer operation in preference to total hysterectomy by *cœliotomy*.

No.	Disease.	Method of operating.	Result.
I.	Multiple intraligamentous uterine fibroid	Supravaginal amputation and serre-nœud.	Recovery.
II.	Large uterine fibroid.	Supravaginal amputation and ligature by Baer's method.	"
III.	Multiple intraligamentous uterine fibroid.	Do.	Died.
IV.	Uterine fibroid.	Do.	Recovery.
V.	" "	Do.	"
VI.	Sepsis and acute anæmia after self-induced abortion.	Do.	Died.
VII.	Cyst of ovary and septic metritis.	Do.	Recovery.
VIII.	Pyosalpinx and septic metritis.	Do.	"
IX.	Cancer of the body of the uterus.	Complete hysterectomy by cœliotomy.	"
X.	Pyosalpinx, small uterine fibroid, and suspicion of cancer.	Do.	"
XI.	Prolapsus and contraction of os after amputation of cervix.	Do.	"
XII.	Cancer of cervix and base of bladder.	Vaginal hysterectomy.	"
XIII.	Cyst of ovaries, prolapsus, bilateral cervical laceration, contracted pelvis.	Do.	"

Vaginal hysterectomy has quite a different field, and when it is indicated at all, it is usually clearly the operation of choice. The vaginal route for tubal and ovarian diseases is now chosen by some of our best men, and the uterus is often incidentally removed in the process. The advantages of this route to reach the appendages are not clear to me, and I shall look for some revulsion of feeling when the novelty has worn off; and largely I believe on account of the point I have made, that of ultimate obliteration of the vagina when the whole uterus is removed. As nearly as it can be generalized, I should choose my methods of hysterectomy about as follows:

1. With the serre-nœud or rubber ligature very rarely, and only in cases of great emergency where time of operation must be very short, and not an unnecessary drop of blood lost.

2. Total hysterectomy by cœliotomy when it is necessary for any reason to go in from above the symphysis pubis, and also necessary, on account of cancer or other disease, to remove the whole uterus.

3. Baer's operation (supravaginal amputation) in all other cases where hysterectomy by cœliotomy becomes necessary—*i. e.*, large, not malignant fibroids, septic tubo-ovaritis with a large, boggy, infected

uterus, and in hysterectomy of the pregnant uterus before and after delivery, etc.

4. Vaginal hysterectomy for cancer or sepsis, and all other conditions *where hysterectomy is necessary* and the size of the organ permits of its removal by the vagina, excluding those cases in which dense adhesions of bowels or other viscera would make a cœliotomy preferable for the purpose of securing a clean and complete removal of all diseased tissues and the repair of damaged or torn viscera.

212 MCPHEE BLOCK.

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## GAUZE AS A MATERIAL FOR DRAINAGE.\*

BY L. GRANT BALDWIN, M. D.,  
Gynæcologist to St. Peter's Hospital, Brooklyn.

Perfect and well-managed drainage, even in a case not necessarily requiring it, will not increase our mortality, but its absence will surely delay convalescence, if not be the direct cause of death in a case demanding it, and making an unhappy ending to an otherwise successful and painstaking operation.

That there is no entirely satisfactory method of draining the abdominal or pelvic cavity is certain from the various methods and materials used in this city alone. Different men's conception and application of the same methods also differ widely. Two or more ways of working may be equally good, and the one to be adopted will depend entirely upon the individual worker.

All will agree, I venture, that the cases where drainage is demanded are getting gradually less as our ability to do complete and perfect operations increases, and for this very reason, when we do need it, the necessity for material and method that will drain becomes important. I can recall many instances where, when the drain was removed, it was immediately followed by a gush of blood, pus, or whatever the fluid to be carried off, covering patient and bedding, proving that either the method or material was faulty. These facts must be my excuse for bringing this subject before you for discussion this evening, and not that I have the one perfect method, or, in fact, anything *new* to present to you.

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\* Read before the Woman's Hospital Society, February 11, 1896.

Gauze is probably used by more operators than any other material; however, remarks such as the following are often heard and seen in print: "Gauze will not drain." "Gauze *drainage* is a misnomer." "Instead of gauze drainage we should speak of gauze packing." These statements indicate an experience widely at variance with my own.

Since I adopted my present method, now about two years ago, I have not been disappointed in my results, and have employed drainage in cases that I would have previously closed without. Whether the route for the escape of material likely to offend be through the vagina or through the abdomen must be left to each individual case for settlement; but, whichever one is selected, something more than simply keeping the lips of the wound apart is essential, for with a patient on her back, the way is not all down hill from all parts of the cavity to be drained to the vulva even. For my own part, I prefer to drain most cases through the abdomen for the reasons that drainage can as positively be obtained in that direction as through the vagina, and is more easily and conveniently managed. Unless the drainage material comes to or through the vulva, the best results can not be obtained, and in that case, even with the greatest care, soiling with the dejections from bowel and bladder will occur, to say nothing of the great difficulty experienced by all in rendering the vagina sterile. If prolonged drainage is necessary, the vagina can be opened at a later period if thought advisable, when the peritoneal cavity has been shut off, with little or no risk.

A glass or rubber tube will only drain from its bottom for any considerable time, the lateral holes almost at once becoming plugged by the tissues drawn into them. In fact, I believe that a tube of this kind only serves as a channel through which drainage may be forced, allowing fluid to run out when the cavity below is full to overflowing, and on removing the tube the cavity will be found full. Not so when gauze is properly used. I have never found an accumulation of fluid on removing the gauze when used after my present method.

The method to which I refer is very simple, and is as follows: A piece of gauze, plain, iodoform, or whatever variety is desired, only being certain that it is sterile, a yard wide, and of a length sufficient to extend to the deepest part of the cavity to be drained. This is then twisted as firmly as *possible*, and made to go to the bottom of the cavity without bending up on itself.

The protruding end should be left long enough to make a con-

siderable surface for contact with the dressing outside, and it should not be constricted too tightly at the incision.

Gauze used in this manner has so far met the indications for me. If free oozing comes from points that can not be easily controlled by this one column of gauze, of course more may be packed around it in the usual manner. I have not found it necessary to do so.

The dressing on the abdomen should be moist, and not allowed to dry, as that will very materially interfere with the drain.

The chief advantages of gauze used in this way are, firstly, it will drain, and by that I mean not merely be a medium by which it can be obtained by force from behind; secondly, it will drain throughout its entire length—*i. e.*, wherever the column comes in contact with an oozing surface it will at once commence to act; and, thirdly, that primary union can almost certainly be obtained twenty-four or forty-eight hours later, when it is removed.

If drainage is needed after that length of time a fresh column smaller than the first can easily be placed, though of course the original one may be left in place much longer if it thereby meets the indications.

Gauze *will not* drain thick, creamy pus, and from its physical properties we should not expect it to do so.

The conditions most often requiring drainage outside of uncontrollable oozing of blood is encountered after the evacuation of peritubo-ovarian abscesses, in which it is impossible to remove all necrotic tissue or cover all raw surfaces, but even here after proper cleansing, there will be no pus of such character to drain before the third or fourth day, and by that time gauze as a drain will not be needed, its use being simply to keep the way open for frequent washing.

During the year ending January 1, 1896, in my service at St. Peter's Hospital, Brooklyn, I had occasion to operate on twenty-four pus cases, exclusive of several cases of general septic peritonitis; of these, I thought it best to drain twenty-one cases—a large proportion, I am aware, but each case was carefully considered before drainage was decided upon. Of these, a troublesome sinus remained in three cases. Two of these were for appendicitis following a ruptured pus tube, with localized peritonitis, and the third a case of double ovarian abscess in which the drainage canal became infected either at the first changing of the dressing, or else some necrotic tissue remained after the operation. Only one of these persisted longer than six weeks; one was operated for the removal of a silk ligature six months later, and healed without further trouble.



Two cases died of sepsis: one a ruptured ovarian abscess, and the other a double pyosalpinx of long standing and in a patient much below par in the matter of resistance. The remaining cases I was able to close at the end of twenty-four or forty-eight hours, and secured satisfactory union by first intention.

I have not seen fæcal fistulæ follow its use, or any symptoms of intestinal obstruction.

My rule has been to drain in cases of free oozing rather than to unduly prolong an operation to control it, and in all cases where the peritonæum is soiled with pus at all during the operation, believing it safer to drain for twenty-four hours than to take any chances on the pus being sterile. The findings of the microscope may be right, and its presence a great addition to the operating room, but much depends upon who looks through it; and, too, that one or two slides are found sterile does not, to my mind, prove a like condition of the whole collection of pus.

Because the peritonæum *will* take care of an *uncertain* amount of septic and sterile material is no valid reason why we should compel it to do so. My belief is that many cases recover without drainage that would have a smoother and more rapid convalescence if properly drained.

I first saw gauze used in this way by Dr. J. D. Rushmore, of Brooklyn.

28 SCHERMERHORN STREET.

## TREATMENT OF ENDOMETRITIS.

BY RALPH WALDO, M. D.,

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The existence of endometritis without more or less metritis is decidedly a question in the minds of many, and I believe that all gynæcologists who admit that there is such a disease as metritis also admit that it is always associated with a certain amount of endometritis. Without entering into a discussion on these points we will assume that there is such a disease as endometritis where, if the endometrium is not the only structure that is the seat of the inflammation, it is primarily affected and in many instances the most important tissue involved.

The subject will be more intelligently considered if the anatomy of the endometrium is first looked into.

There has been a long discussion between anatomists as to whether the endometrium is or is not a true mucous membrane. If it is one it is of a peculiar nature in that the epithelial layer is thicker in places than in any other mucous membrane in the body, and that its derma is thin and has no sharp line of demarcation between itself and the adjoining inner muscular layer of the uterus; bundles of muscular fiber radiate from one into the other so that the two are irregularly interlaced together, and the inner muscular layer of the uterus has some of the characteristics of an extensively hypertrophied muscularis mucosæ. It contains a large number of glands (utricular glands) which extend throughout the entire thickness of the membrane and end in *culs-de-sac*. Formerly these glands were supposed to enter the muscular substance of the uterus, but now this is generally regarded as erroneous; but their dilated extremities are imbedded in the derma which, as has been stated, is firmly attached to the muscular layer of the uterus. This anatomical fact is of importance to remember when the treatment of endometritis is considered. As the cervix is reached the membrane becomes thinner and less supplied with glands. In the cervical canal it is thrown into folds, thus giving a large surface. The glands of the cervix (Nabothian follicles) secrete a tenacious substance.

During the menstrual flow there is marked hyperæmia of the endometrium, resulting in hæmorrhage from it and excessive secretion from the glands, associated with exfoliation of quite a portion of the epithelial layer, which is rapidly replaced during the interval.

The treatment of inflammatory diseases of the endometrium is not new; as I was able to point out in an article read before the New York State Medical Society, February 2, 1892, in which the statement is made that Aëtius, who lived in Alexandria (500 A. D.), speaks of the use of the speculum; describes minutely the sponge tent and intra-uterine medication; mentions the intra-uterine use of ointments, pencils, and caustics of many kinds, which shows that for a long time the Egyptian physicians had been in the habit of treating inflammations of the uterus. These precise methods seem to have been lost during the dark ages, and their revival was slow. In the first recorded cases we find that the unfortunate patients were treated by the most heroic "antiflogistic" measures. Then came a long list of careful scientific observers, as Bennett, Wright, Tilt, Sims, Byford, Chapman, and many others, till the present time has evolved a treatment that to a

certain extent differs from that which has preceded—possibly due to the recognition of the importance that micro-organisms of one kind or another play in the ætiology and course of endometritis, and the necessity of an intelligent application of the principles of antisepsis and asepsis, together with the application of general surgical principles to the treatment of this most important malady.

It is impossible to so classify endometritis, excepting in the most general way, as to include all of the possible forms of the disease. In fact, every case is, to a certain extent, a law unto itself. From a pathological standpoint it has been classified as acute and chronic catarrhal, croupous, tubercular, and syphilitic; but, to facilitate description, we will divide the disease according to its location and intensity as follows:

I. Affecting the cervix:

1. Acute.
2. Chronic.

II. Affecting the entire endometrium, including that of the cervix and body:

1. Acute.
2. Chronic.

In all varieties of endometritis the general health must be thoroughly attended to, and in many instances that will be all that is required, as in the endometritis that occurs during or after the acute exanthemata, where you may have all of the general symptoms of catarrhal inflammation of the lining membrane of the uterus with a greater or less involvement of the neighboring mucous membranes. Still, all of the symptoms will disappear as your patient's general health improves. Many of these patients (and they are usually young girls) do not require a physical examination, much less local treatment. Again, when there is a marked diathesis, as in scrofula, gout, rheumatism, and syphilis, constitutional treatment will effect a cure; at any rate, it is an absolute necessity in connection with the local treatment.

It is a question if the cervical endometrium is ever markedly inflamed without that of the body being more or less involved; but the first heading deals with cases where the cervical endometrium is primarily and principally diseased. In this variety free drainage should be established if it does not already exist. Ordinarily this can be accomplished by the use of steel-branch dilators or graduate dilators, such as those devised by Dr. H. T. Hanks, and it has been stated that this slight operation can be performed, possibly at several sittings, in

your office without the use of an anæsthetic, for rarely does the whole cervical canal require dilatation, and in other instances it is very dilatable. I very much doubt it ever being good practice to dilate in your office, even in comparatively simple cases, because you never know the exact condition of the uterus till after you have dilated; and, secondly, it is very difficult to carry out thorough antiseptic precautions in your office, and an additional infection might lead, and in many instances has led, to very serious consequences. Occasionally where there is marked contraction of the external os, crucial incision of the cervix, as recommended by Dr. P. F. Mundé, will be found very beneficial as an adjunct to dilatation; but if there is a marked deposit of cicatricial tissue with nearly complete closure of the external os, especially as in a case similar to the one that I operated on this past summer, where a trachelorrhaphy had been performed a few months before, and the operator had nearly closed the cervical canal (and I am sorry to say that a number of similar cases have come under my observation), it will be necessary to amputate the end of the cervix, for no matter how extensively you dilate these cases, they are almost sure to recontract. In acute cases, before the cervical endometrium has become extensively changed, applications every second day of Churchill's tincture of iodine to the vaginal portion of the cervix and the upper part of the vagina, followed by tampons thoroughly soaked in glycerin or glycerin to which has been added boroglyceride, boric acid, or ichthyol, and hot ( $110^{\circ}$  to  $120^{\circ}$  F.) douches, and rest in bed, will be all that is necessary to effect a cure in a short time; but in cases that are of longer duration, in addition it will be necessary to thoroughly clean the mucus out of the cervical canal with a curette and make applications of tincture of iodine or carbolic acid, or a mixture of the two or some similar remedy, directly to the cervical endometrium. In chronic cases, where the membrane is extensively hypertrophied and its glands very much involved, the treatment that has just been mentioned will be found of very little, if any, benefit, and it will be necessary to resort to more radical measures. The glands must be thoroughly scraped with a sharp spoon or curette, and, in rare instances, the entire cervical endometrium removed, as has been recommended by Schröder. Caustics have been extensively employed for the cure of this condition. I wish to condemn their use, as mild ones are of no benefit, and severe ones are liable to leave a cicatrix that is of more harm to the patient than the endometritis.

When the whole endometrium is involved the disease will be found

more difficult to cure. In the acute form, especially if it is of septic origin, the whole uterus is involved and not infrequently, though it follows parturition, there is so much tumefaction at the internal os that quite an amount of material will be retained in the uterine cavity. Many times, when there is a sudden rise of temperature or arrest of lochia, if an instrument, or preferably the finger, is passed through the internal os, a discharge of retained lochia will follow, proving that obstruction exists in certain cases where apparently the cervix is well dilated, and so demonstrating the necessity of positively ascertaining in every case of severe endometritis the exact condition of the cervical canal. In this class of cases Dr. W. M. Polk, after emptying the uterus, advocates drainage with strips of iodoform gauze, and by so doing I believe he has added an important method of treating certain cases; but, in other instances, I still believe that the method followed in the New York Maternity Hospital, when I was house surgeon (1883), which consisted of thoroughly emptying the uterus of any retained material and following with antiseptic intra-uterine douches of a two-per-cent. solution of carbolic acid from one to three times during the twenty-four hours as long as the uterus remains septic, is the best. In this connection it is very necessary to lay stress on the importance of discontinuing intra-uterine douches, as well as other local treatment, as soon as the local sepsis has ceased, which can be determined by local examination and not by the constitutional symptoms. In many instances a general sepsis is developed which will cause a high degree of temperature, and many other severe symptoms long after the local disease has disappeared. B. S. Schutz advocates this method of treatment in chronic "suppurative endometritis." He precedes each antiseptic douche with a douche of a three-per-cent. solution of bicarbonate of soda for the purpose of clearing out the accumulated discharges. In a large percentage of cases of acute endometritis following abortion or labor it is only necessary to remove retained material from the uterine cavity and give one copious intra-uterine douche of boiled water or a mild antiseptic solution, after which rest in bed, vaginal douches, and general symptomatic treatment is all that will be required to effect a cure.

In the chronic forms of inflammation affecting the entire endometrium the glands are extensively involved, so there is very little if any tendency to spontaneous recovery, and the ingenuity of many of the brightest minds in the medical profession have been taxed to their utmost to cure the more obstinate varieties. It has been generally believed that a cure could only be effected by removing the dis-



eased part of the endometrium, and so a very large number of astringents and escharotics have been applied in the form of solutions, ointments, bougies, and solid substances. One physician claims to have been the first to use chromic acid, another fuming nitric acid, another chloride of zinc, and so on ; but their treatment and results are very much the same. They will remove the diseased glands ; but the chances are that they will burn too deep in places, and not destroy the diseased tissue in others. A number of patients have presented themselves to me with marked stenosis of the cervical canal that was undoubtedly the result of the use of caustics. These unfortunate women were much worse than before they first sought medical advice. Many times this condition is extremely difficult to cure, because frequently an ordinary dilatation is shortly followed by recontraction of the cervical canal, and, if this is allowed to persist, tubal disease is sure to follow. Caustics should not be used.

If the disease is at all extensive, astringents alone will do little more than stimulate the process. In fact, unless you first use a curette to remove the mucus, it is a question if they ever come in contact with even the surface of the endometrium, much less the deeper portions of the utricular glands, which are the most important localities to reach. I have long since discarded their use as a principal factor in the treatment of endometritis.

Undoubtedly the ancients dilated the uterine canal in the treatment of endometritis, and they doubtless used many principles similar to those now followed ; but unquestionably the pioneer of modern times in this particular line was the late J. Marion Sims, who stated in 1866 that " drainage was of the greatest importance in the treatment of this class of cases," and described a stem that he had found very useful in many instances. He used a steel-branch dilator for the cervix, of which many at present in use are only slight unimportant modifications.

To properly treat the chronic varieties of inflammation affecting the entire endometrium, the first and absolutely essential thing to be accomplished is thorough dilatation of the cervical canal, and the different instruments employed to accomplish this are :

I. Tents.

II. Graduated dilators.

III. Steel-branch dilators.

The method :

I. Gradual dilatation.

II. Rapid dilatation.

The sponge tent, or any other kind of a tent that is to remain in the cervical canal for a number of hours, and in many instances depend upon material that it absorbs for its power to dilate, is always dangerous; not that every patient or a majority are going to be injured, but, no matter how sterile the tent, the secretions are not sterile, and frequently there will be slight sepsis and occasionally a patient will lose her life from acute infection within a few hours after its introduction.

Graduated dilators, as those devised by Peasley or Hanks, are useful; especially where the canal is very small and it is difficult to introduce a steel-branch dilator, it can be easily accomplished after using two or three of the smaller sizes. Many gynæcologists use them where they wish to treat the case by gradual dilatation. The statement that they exert a piston action, and so possibly force material from the uterus into the Fallopian tubes, is erroneous, for the cervical canal is collapsed before the dilator is passed into it.

Steel-branch dilators are by all means the most effective instruments with which to dilate a cervix. In selecting an instrument care should be taken to see that it will not give at the end that passes through the internal os, for that is the most important part of the cervical canal to thoroughly dilate. The canal should be dilated slowly, but as extensively as it can be short of lacerating the cervix, and when this point is reached in a given case experience will tell you. As a rule, you notice a very slight abrasion at the external os.

Drainage having been accomplished by thoroughly dilating the cervical canal, the next question that presents is, What shall be the treatment of the interior of the uterus? It should be curetted so as to remove the epithelial layer of the endometrium, having the hard derma containing the cup-shaped extremities of the utricular glands so that they can be thoroughly disinfected; a new epithelial layer free from infection will form in a manner very similar to its formation after parturition, and it is not infrequent for your patient to stop menstruating for a month or two after a thorough curettage. It is difficult to completely remove the entire endometrium with a curette, as its derma is so firmly attached to the muscularis, but it has been done, and the entire uterine cavity has been occluded as the result. I use a sharp curette, because many failures have followed the use of the dull, remembering that the sharp curette is not a cutting instrument, but one that will effectively scrape the softened, diseased epithelial layer of the endometrium. When the derma is reached, a hard grating sound will be produced by the curette. After this the uterine

cavity is thoroughly douched with boiled water or a mild antiseptic and its cavity loosely packed with iodoform gauze, which is allowed to remain for twenty-four hours, and the uterus is not repacked. The gauze is to more thoroughly sterilize the endometrium, cause slight uterine contraction, and insure the removal of any particles that may have been loosened by the curette but not removed by the intra-uterine douche. Formerly I left the packing in for a week; later the first gauze was removed at the end of four days, and a second packing at the end of the week. These methods were not followed by as good results as is the case at present.

This work is done under general anæsthesia, with the most thorough antiseptic precautions, and as a rule the patients remain in bed for three days, receiving a hot ( $110^{\circ}$  to  $120^{\circ}$  F.) vaginal douche each day, which is continued daily for two months after the operation.

68 WEST FIFTIETH STREET.

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## SADDLES AND POSTURES FOR WOMEN ON THE WHEEL.\*

BY ROBERT L. DICKINSON, M. D., BROOKLYN,

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One has but to glance at ten riders of the hampered sex to see nine bicyclists ignorant of some of the rules of good riding, who misapply force, waste effort, and run a certain risk of harm. The trouble is chiefly due to lack of training, since the pupil is turned adrift on the road as soon as she can balance a wheel and can mount and dismount, and further instruction may only be called out after bad habits of riding become fixed. Unmerited disrepute is thus thrown on the most alluring and practicable, as well as the most generally beneficial, of the outdoor exercises for women.

I started to describe some of these strained attitudes, and to photograph dressed riders. It was evident at once that my points could not be made with any clearness without obtaining anatomical data that the clothes concealed. This may be an excuse for making

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\* Read, in abstract, before the New York Obstetrical Society, January 7, 1896.

my statements in more pictures than paragraphs.\* Such graphic arguments serve to answer some of the questions put to physicians concerning right ways of using the wheel, and may define its relation to the sewing machine and horseback riding.

It is superfluous before this audience to do more than name the ordinary precautions necessary for the women who take up wheeling. We all agree, and insist on our patients' recollecting, that tension and excess may do much harm. We lay stress on careful increase of length and difficulty of ride; on heeding the warning given by palpitation and labored breathing—signs of strain of the right heart, which is only robust in laborers and athletes; on frequent rests; on care about chilling and over-fatigue; on light food during exercise; on rest after riding. We state that muscular aching after the first few rides is expected, but exhaustion and after-pallor call for medical advice, and we say that tension is as hurtful as excess. Keenly alive to all possibilities and impossibilities of accident, woman suffers more nerve strain than man, and narrow side paths or crowded roads are not for her until she is confident, at ease, and quick in automatic action.

*Saddles.*—The troublesome question concerning wheeling does not lie among these simpler matters, which every rider with a modicum of common sense appreciates. It concerns the anatomical problems presented by the saddle. A good saddle, as I have already had occasion to say in the *Outlook*, embodies anatomical modeling; selection to fit the individual form; stanch construction, that it may not alter in shape with use; and adaptability, that it may be set at any angle, moved forward and backward, and made more or less tense. It must fit the individual, we say; but, notwithstanding the fact that the modeling in no two persons is alike—differing as much as the shape of individual faces or hands—many still hold to the absurd belief that a single perfect saddle can be constructed to suit all needs. Manifestly each woman should seek out what is adapted to herself, and, in starting with a few general principles, must work out her own problem. It is safe to say that the number of women who can not be suited after a little patient trial must be very small.

Saddles must differ as pelvic floors, as buttock contours, and as thigh modelings differ. Take three models at random and compare the point of the lowest sweep of the floor line from coccyx to symphysis—usually in front of the anus—with the elevation of the gluteal

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\* The courtesy of Mr. W. S. Perry, Art Director at Pratt Institute, enabled the author to take pictures in the life studios from professional models.



FIG. 1.—Correct posture. With the foot at the lowest point, the knee is slightly bent, as shown by the bones of the joint, while the ankle is somewhat straightened, the elbow is a little flexed, and the wrist extended. The thigh bone of the farther leg is at a strong slant, whereas in Fig. 2 the raised thigh is nearly level.

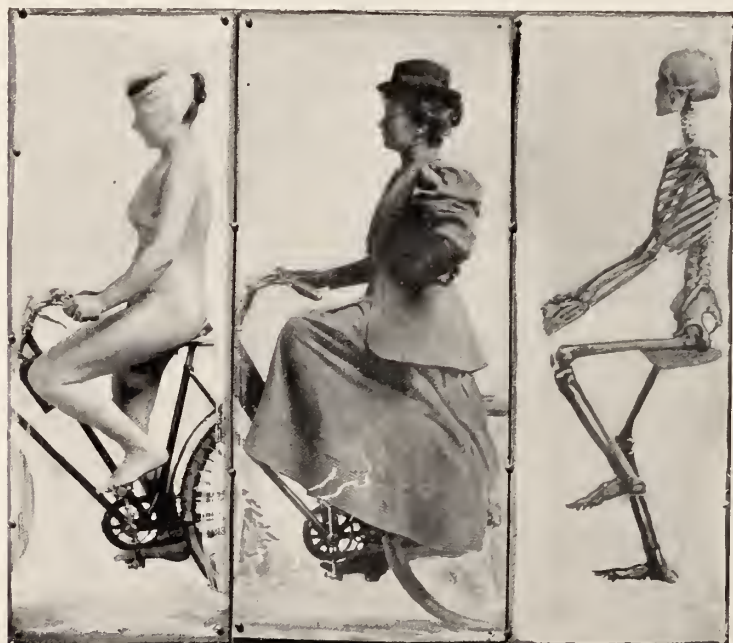


FIG. 2.—The “walking-beam action” of the knee, due to faulty ankle action, or to a saddle too low. The near heel is not held down as it should be, and the far heel is not high enough. The drag on the skirt is also demonstrated. The model is on a saddle well forward, so that her knee is not very high. The skeleton’s femur is nearly level.





FIG. 3.—The rider well over her work, the foot forward at the point where most of the power is applied, showing how short a distance from the perpendicular the pedal sweeps forward. Illustrating a low position of the handle bars, with an arm that is too straight.

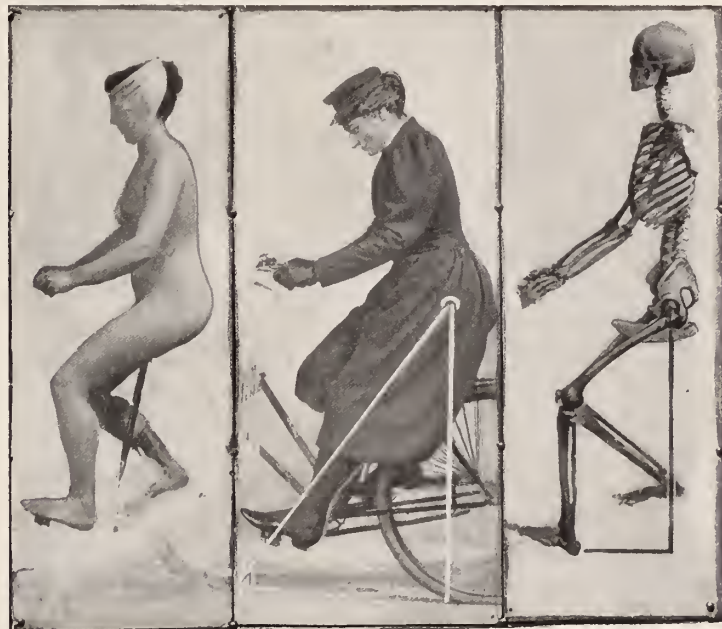


FIG. 4.—The commonest fault of position among women. The saddle is too low and too far back. Compare the distance between the pedal and the perpendicular in this and Fig. 3. Advisable for beginners, to give them ease in mounting, and the sense that the ground is within easy reach.

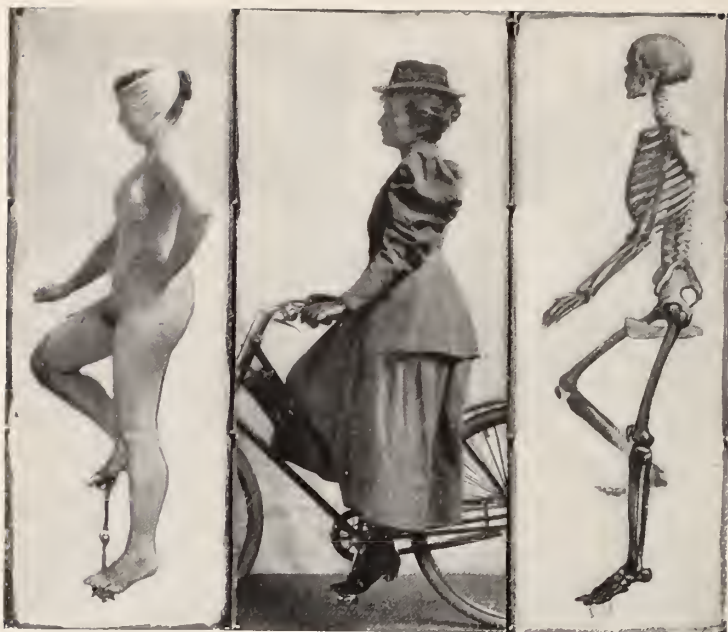


FIG. 5.—Overstretched leg, both at the knee and ankle, with the saddle too high. The action of the knee may be compared with that in Fig. 1. Tiresome, with strain on posterior ligaments and all leg muscles.

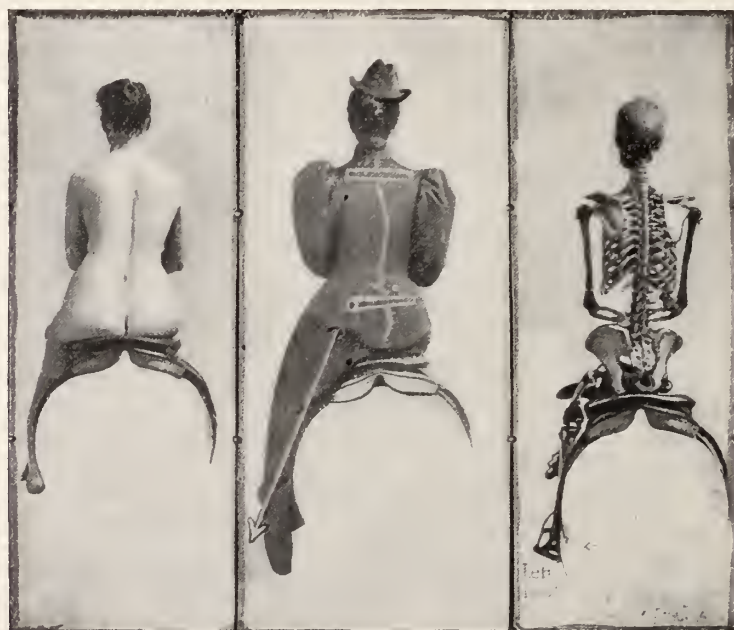


FIG. 6.—Horseback posture from the rear ; to demonstrate the distance out from beneath the body the foot support is placed as compared with the bicyclist's position in Fig. 7. The outline of the spine, and bars at the level of the shoulders and the hips, give an idea of the twisted vertebral column.

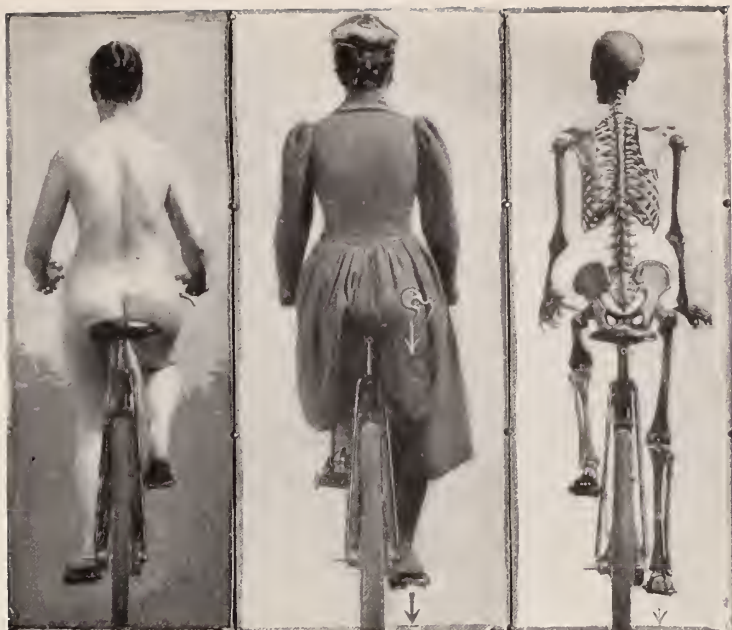


FIG. 7.—Correct posture, from the rear; a perpendicular dropped from the hip socket passes through the center of the pedal. An even and easy action and balance to the outer and inner leg muscles is maintained as compared with the posture of Fig. 6. Handles of the nude figure are too far apart for her width of shoulder.

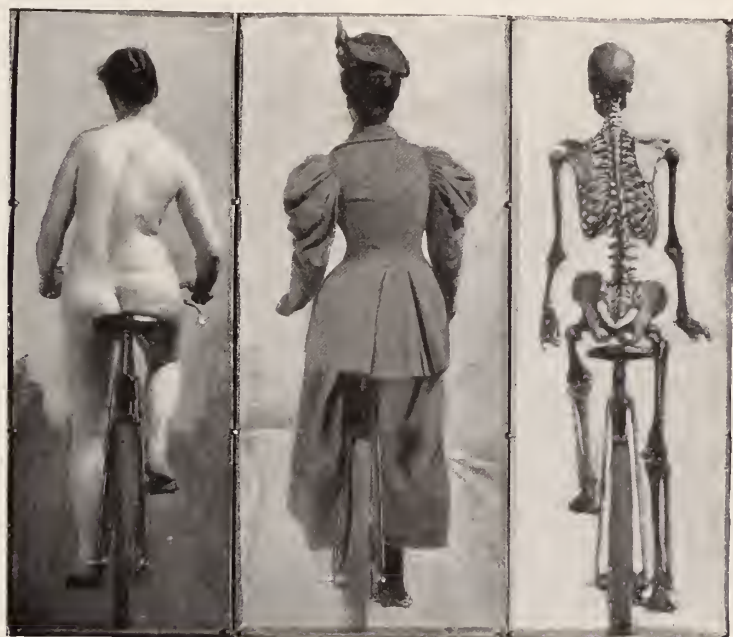


FIG. 8.—The rocking pelvis. This occurs with the saddle too high, or from faulty action, especially in hill climbing. Compare with Fig. 7.

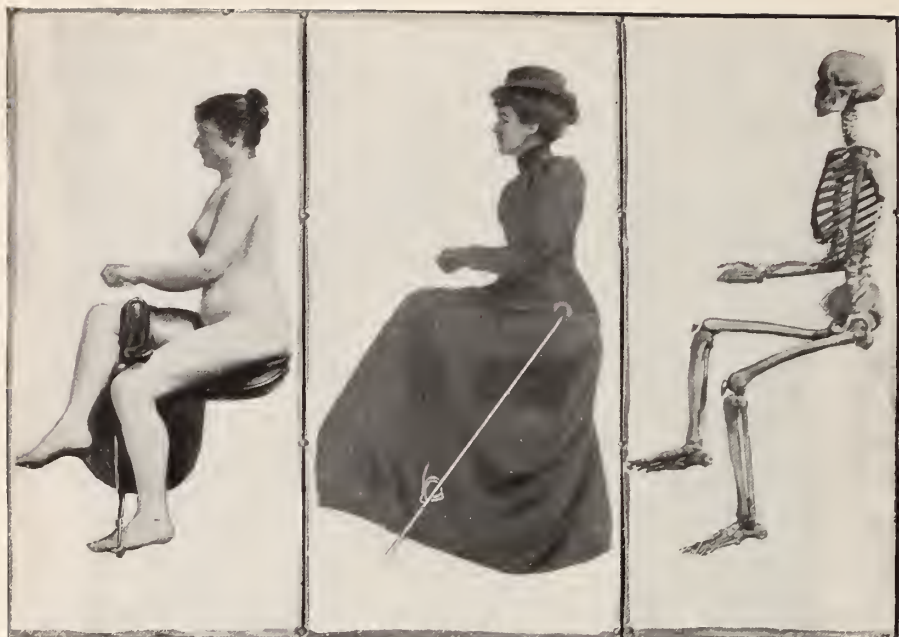


FIG. 9.—Horseback posture, from the side. The skirt masks the striking contortion of the figure; the foot is far away from beneath the trunk; the lower leg is like that in Fig. 4. Compare nude model and skeleton here with those of Fig. 1.



FIG. 10.—The scorcher. An attitude only allowable in breasting a short hill or a gust of wind, or for a rest.



FIG. 11.—The sewing-machine attitude. Cramped compared with Fig. 1 or any other except the scorcher's position.



fold and the gluteal fat-pads. Notice how greatly the thickness of the labia majora varies, bringing the vulva against an ordinary saddle in one case and clear above it in another. The nymphæ, the real seat of sensation in women, can not receive friction except when hypertrophied and low hanging, or in certain conformations. The clitoris—wrongly supposed to be the most sensitive point—is protected. Its usual seat is above the pubic arch against the front of the symphysis, and a sagging, weak-sprung or stretched-leather saddle is the only one that could make contact here, except in the scorching posture (Fig. 10). A narrow saddle, permitting the wide pubic angle to straddle it, will bring weight on the vulva, and a saddle tilted downward in front will slide the trunk forward on to the narrower portion of the saddle. But these conditions are too infrequent to be a source of danger, and too uncomfortable to be tolerated long. I have only to re-enforce the statement made in detail in my former paper (*American Journal of Obstetrics*, January, 1895, on Bicycling for Women), that investigation proves sexual feeling not to be aroused or self-abuse fostered by wheeling. The scorching position is the only attitude in which the pubic arch is likely to span the front pommel or the vulva, or come in full contact with the saddle. Although the location of the vulva varies much in different women, it is to be noted that in the right posture (Fig. 7) the symphysis is at some distance above the saddle, and that the vulva for half its length is high, covering the front of the symphysis, instead of being, as the student commonly imagines, beneath the pubic arch—dorsad to it, as Dr. Wilder would say.

Moreover, whether the vulva will come in contact, more or less, with the saddle is somewhat dependent on the inclination of the pelvis. With an excessive pelvic inclination the pubic arch is applied almost level to a level saddle, and in such case a saddle with a median groove is desirable. Among women whose ideas of sitting upright include the ungainly and extreme incurving of the lower back (the lumbar curve), the symphysis will again come in contact with the front pommel. I have had to draw attention to this more than once, and, indeed, in the illustration showing the correct posture in an excellent article in one of our most prominent monthly magazines, this is shown as the correct attitude.

One can not do away with the anterior projection of the saddle entirely, for the reason given by Dr. Chadwick: "The trouble is that when the leg is straightened and the treadle at the lowest point of its circuit, the thickness of the thigh tends, by pressing against the an-



terior margin, if an oval saddle, either to lift the tuberosities of the ischia from the saddle or to drag them forward, so that after a jounce they will not descend upon their proper place and a secure seat will be thereby lost, or the skin be chafed at the junction of the thigh and the ischiatic region."

Another noteworthy anatomical condition militates against the probability of the construction of the perfect seat, that never can chafe : In the ordinary seated posture on a chair the right-angled flexion of the thigh on the trunk axis draws the gluteal pad or buttock directly forward under the tuberosity to act as a cushion. But when the thigh is extended, or nearly so, the cushion is pushed backward, and the tuberosity falls nearly opposite and above the outer end of the gluteal fold, with scant covering or shield. This accounts for the fact that some women derive more comfort from a man's saddle than from the broader form of the same make, which causes discomfort along the ischial ramus and tuberosity. This is the place where an English pigskin often chafes a man on horseback.

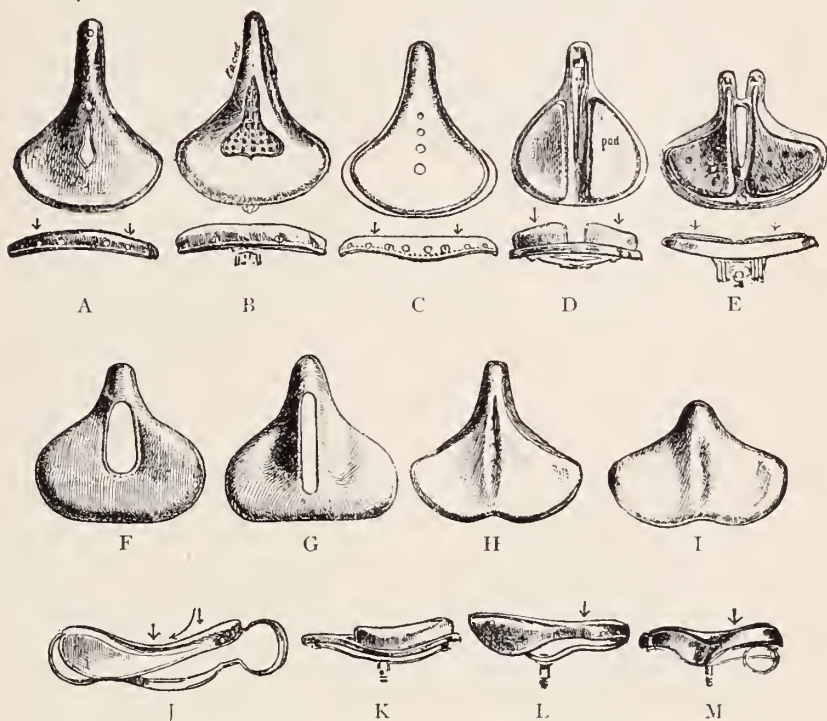
*Defects in Construction.*—Some of the injurious and not uncommon defects are : A center ridge ; sagging, or the hammock shape ; narrowness ; and a vicious tilt.

Some seats are built on the ridge-pole plan, notably on one of the best of the popular wheels. There is in this case contact over such an area of the nates and pelvic floor that at first it seems most comfortable, and only after a long ride is the harm of it divined. The same shape may develop from stretching of the leather. It may also come from bending downward of the outer ends of the cantle or transverse rear bar of the saddle. Fig. A shows a saddle made in this shape.

The downward sweep of the center of the saddle is also occasionally due to faulty construction. More often weakness of the spring causes the imperfection, and the tendency to it is one of the reasons why the old model of spring, as is shown in Fig. J, is little used now. A flat stiff spring is the usual form, and for those who feel the jar a good deal there are, besides the pneumatic saddles, those with a better kind of spring, such as the Hunt Lady's, the Duplex, and the Utility. Saddles that are originally of good model may sag from stretching. This is usually remediable by setting the nut underneath, a thing that may call for the repairer's vise.

The narrow shape is unsuited to some women, because the wider pubic arch allows the pelvis to straddle the ridge pole with more ease and more harm than is the case with men.

A wrong tilt or angle, unduly raising or lowering the front peak, calls for mention only because the average woman is not aware how slight an alteration in angle will make a large difference in comfort and safety.



The available types of saddle we may roughly classify as follows : First, the narrow man's saddle suitable to a few women. Second, the most commonly used and most useful of all, the modified male type of the shorter, broader, flatter form, supplied with most wheels on request. It should not be less than eight inches wide. As examples are the Mesinger (Fig. B), Garford (Fig. C), Hunt (Fig. C), and Reform Wheeler. There is the saddle with the pad on each side to carry the weight, with a deep groove in the center and without front pommel. Of these the best is the Christy (Fig. D). Many people find comfort and relief to perineal pressure in this seat. It is less secure than the usual form, and chafes some riders.

The Automatic belongs in this class, though it embodies another principle—to wit, the independent tilting of the sides with the motion

of the legs. One objection to these saddles is that greater care is necessary in mounting on account of their rather sharp beaks.

Theoretically, the broad seat with a very short and blunt pommel in front would seem the ideal one for women. Various forms devised on this principle are coming into use. Their only fault is that in certain people, as already explained, there is a tendency to chafe along the inner side of the tuberosity. Therefore they should, as a rule, be placed farther back and lower than the ordinary saddle. The Empress, the Duplex, and the Common Sense may be mentioned as well adapted to some individuals.

Theoretically, too, the pneumatic saddle would claim approval, but it is not much used apparently. The Cutting saves some of the jar, and has a short anterior projection which does not rise when pressure is made on the confined air farther back. The Sager has a separate cushion on each side, and thereby prevents the billowy feeling some air-cushion saddles give, while the lacing allows of certain changes in conformation.

Individual saddles, shaped to suit the rider, is what we have been looking for, and Mr. Ray, of the Rambler agency in New York, is meeting this demand. The customer sits in a tray of modeling clay which is fastened to the bicycle like a seat in such fashion that the wheelman propels the wheel while the impression is being taken. Over the plaster cast of this mold an aluminum plate is made, and the metal is covered with felt and leather. A marked variation in individuals is observed (Figs. F and G).

*Postures, Correct and Incorrect.*—Concerning these I shall let the pictures speak for themselves, as the text below them tells what there is to say. I draw attention to the model photographed in the sewing-machine position, to controvert the queer objection that still manages to draw breath and which holds that the actions on the two machines resemble each other. And to give clearer ideas of that contortion that is masked by a riding skirt, the front and rear views of the ladies on horseback are respectfully submitted. One has but to imagine the man's position in these cuts to see that some of the same statements concerning misapplied force and lack of balance between the work demanded of internal and external thigh and leg muscles applies also to his attitude astride a horse.

In the matter of faulty postures we have but to say that seven tenths of the ungainliness or lumbering action of women awheel is the result of such attitudes. The rest is due to dress unsuited to the exercise or to the rider. American women rarely study themselves as

the French women do, and until color and form are adapted by each to her individual beauties and shortcomings, we can not hope for any better decorative effects on the wheel than on the sidewalk.

The practical outcome of this paper is that we physicians ought to have personal knowledge of this means of exercise, and that it is our duty to instruct prospective wheelwomen, in order that each rider be carefully trained by competent instructors as to the right posture, right methods of pedaling, correct height of saddle, correct position of saddle, and, finally, should be told that she must insist—in learning or in buying a wheel—on such trial as will enable her to judge what saddle suits her. By testing the machines of one's friends, not for a half hour, but for a considerable ride, and by experimenting with saddles at different heights, positions, angles, and tension, one can arrive at a comfortable conclusion.

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## THE TREATMENT OF ECTOPIC GESTATION BY ABDOMINAL SECTION.\*

BY CHARLES N. SMITH, M. D.,

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In considering the treatment of ectopic gestation by abdominal section, it is necessary to divide the subject so as to correspond to the several phases under which cases present themselves for operation.

*I. Prior to Rupture or Abortion.*—In the present state of our knowledge of the subject, the diagnosis of ectopic gestation before rupture must be largely presumptive rather than absolute. Comparatively few cases present symptoms of sufficient gravity to lead to a medical consultation before rupture. The differential diagnosis between the tubal enlargement of inflammation, or hydrosalpinx, and ectopic gestation is attended with many difficulties. After the fourth week of gestation, and with suppression of menstruation, the diagnosis of ectopic gestation, while presumptive, can be made with a reasonable degree of certainty. Numerous cases diagnosed as unruptured ectopic gestation, and verified by operation, are now a

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\* Read by invitation before the Chicago Gynecological Society, April 17, 1896.

matter of record. As, however, the conditions from which unruptured ectopic gestation is differentiated with so much difficulty call for abdominal section and extirpation of the tube, this procedure is not only warrantable, but also strongly advisable, where even a suspicion of ectopic gestation exists. The greater the presumption of ectopic gestation, the more urgent must be the indication for operation. No delay in instituting operative measures should be tolerated. Having well in mind the appalling and frequently fatal results, the duty of the surgeon is unmistakable. No woman with an unruptured ectopic gestation is safe until the vessels of the tube have been tied.

It would seem scarcely necessary, at the present day, to speak in further condemnation of the employment of electricity for the destruction of the life of the fœtus. The manipulation of the pregnant tube, necessary to the application of electricity, may be, and has been, the immediate cause of tubal rupture. If the fœtus is killed, the condition within the tube resembles incomplete tubal abortion, and, as in the latter case, may terminate in various ways, and the uncertainty of the method of termination should condemn the procedure. The ovum may be absorbed, and give rise to no further trouble; hæmorrhage into the tube, and through its unsealed abdominal ostium into the peritoneal cavity, with or without extrusion of the blighted ovum, may occur, with an immediate or subsequent fatal result to the patient; or the ovum, remaining unabsorbed and not causing hæmorrhage, may give rise to so much pain and inflammatory disturbance in and about the tube as to render the patient an invalid. It is scarcely necessary to further urge the advantages accruing from the prompt performance of abdominal section, with ligation of vessels and extirpation of the tube, as contrasted with the uncertainties of treatment by electricity and the extremely dangerous certainties of delay.

II. *Tubal Abortion*.—The termination of ectopic gestation by abortion from the tube is possible only within the first eight weeks of gestation. Closure of the tube is ordinarily completed by the eighth week, after which abortion can not occur. In the majority of cases of ectopic gestation, terminated at a regularly recurring menstrual period—that is, at the fourth week of gestation—the route followed by the hæmorrhage and the ovum is through the unclosed abdominal ostium of the tube. During the early weeks of gestation the attachment of the ovum to the tube, through the villi of the chorion, is slight, rendering the life of the ovum most precarious.

Tubal, like uterine, abortion may be either complete or incom-



plete. When the abortion, in the very early weeks, is complete, the hæmorrhage should cease and should not recur. On the other hand, when the separation of the ovum has been only partially accomplished, hæmorrhage, as in incomplete uterine abortion, is prone to either continue or to recur. The ultimate termination, in an uncertain number of these cases, be the abortion complete or incomplete, is by absorption of the blood and ovum, with recovery of the patient. Convalescence is, however, frequently prolonged through months or years, and is marked by many stormy and dangerous periods. At best, a diseased tube and many dense adhesions between the pelvic and abdominal organs are left to menace the patient throughout the remainder of her life. For the immediate, as well as the ultimate, comfort and safety of the patient, operation should be instituted in all cases of tubal abortion accompanied by appreciable hæmorrhage, whether circumscribed or free, recurrent or non-recurrent.

Tubal abortion, with sudden free hæmorrhage, can not be differentiated from intraperitoneal rupture until the abdomen has been opened and the tube examined. The earlier the abortion takes place, the less will be the amount of hæmorrhage, provided the abortion is complete. The hæmorrhage and consequent formation of the hæmatocoele in early abortion will be *gradual*. The operative treatment of tubal abortion, being practically the same as that for primary intraperitoneal rupture, will be considered in connection with the latter.

III. *Primary Intra-peritoneal Rupture*.—A comparatively small proportion of the cases of ectopic gestation are brought to the attention of the surgeon at the time of primary intraperitoneal rupture. At this time he is placed in a position where clear judgment, diagnostic ability, and rapidity in thought and action are most necessary. Presuming that the diagnosis of hæmorrhage from rupture of a pregnant tube is accepted, the first question requiring positive answer relates to the direction of rupture. Is it intraperitoneal or extraperitoneal? A decision having been reached in favor of intraperitoneal rupture, immediate preparation for operation should be made. This must be followed in all cases of severe hæmorrhage by immediate abdominal section. The rule has been largely adopted of postponing operation until recovery from shock has occurred. In the strict observance of this rule many a life has been lost which might have been saved by an immediate operation during shock. If we consider the cause of the shock, the fallacy of the above rule will be evident. Shock in these cases means hæmorrhage, and hæmorrhage alone. To wait for recovery from shock may be to wait for the patient to die. Nature

arrests the hæmorrhage when the heart only slightly feels the stimulus of the blood within its cavities. How much more surely, safely, and quickly can the surgeon arrest the hæmorrhage by a timely applied ligature. I would urge the necessity and practicability of immediate operation regardless of the degree of shock. Every moment of delay may mean increased hæmorrhage, more profound shock, and the rapid approach of death. I grant that the hæmorrhage, even when severe, with the patient's life in greatest jeopardy, may cease, and the patient rally from the shock. On the other hand, recovery from shock may not occur, or if it does occur it may be followed, at a greater or less interval, by recurring and more severe hæmorrhage, and the patient may die before operation can possibly be made. It is the treacherous uncertainties which surround these cases that should prompt us to refuse to be tricked into a false sense of security and a policy of delay.

In view of the almost miraculous recoveries which have followed operation in patients apparently dying from hæmorrhage, it is questionable whether a surgeon is justified in refusing operation in any case of intraperitoneal hæmorrhage while life still exists. It requires only a very short time to open the abdomen and to grasp and secure by snap forceps the bleeding structures. Hæmorrhage is thus arrested, and an opportunity given to combat its effects. The heart's action must be maintained by stimulation. While heart stimulants, notably strychnine, should be freely employed hypodermically, the greatest stimulus to the heart is the distention of its cavities by blood, or a fluid of similar density. To produce and maintain this stimulation, the infusion of normal salt solution is strongly indicated. In this connection I would call attention to an error of no mean importance frequently made in the employment of the salt solution. In uncontrolled hæmorrhage the heart's action becomes progressively less effective from inability of the heart to contract firmly when its cavities are only partially filled with blood. This may result in an arrest of hæmorrhage from failure of the heart to propel the blood through the torn vessels. If in such a case, hæmorrhage having nearly or quite ceased, a quantity of salt solution is thrown into the vessels, increasing the quantity of circulating fluid, the heart cavities again become filled with blood, the heart is stimulated to renewed activity, and it at once proceeds to force more blood through the ruptured vessels. Normal salt solution should never be infused into the circulation until the bleeding vessels have been secured. Exposure of the vessels into which the salt solution is to be thrown may be made by an assistant while the abdomen is being opened. Immediately after

arresting hæmorrhage from the ruptured tube the salt solution may be employed. Removal of the tube and such cleansing of the peritoneal cavity as may be advisable can then be done. Where rapidity of action is required, no route for approaching the tube is comparable with the abdominal.

IV. *Subsequent to Primary Intraperitoneal Rupture.*—Many cases of intraperitoneal rupture will be first seen days or weeks after the rupture. These are the cases attended by comparatively slight hæmorrhage. Although a few authenticated cases of complete absorption of the fœtus and blood, with restoration of health to the patient, have been reported, this termination must be looked upon as uncommon, and its occurrence should not be expected or depended upon. The remarks which I have made in reference to the necessity of operation in all cases of intraperitoneal hæmorrhage from tubal abortion apply with equal, or even greater, force to hæmorrhage from rupture of the tube. In the event of moderate hæmorrhage, adhesions may form between the broad ligament, uterus, intestines, and omentum, and circumscribe the escaped blood. Lawson Tait denies that an hæmatocele may become so circumscribed, and holds that all cases described as such are, in fact, instances of rupture into the broad ligament with the formation of an extraperitoneal hæmatocele, with subsequent and consequent stripping up of the peritonæum from the pelvic wall, rectum, and uterus. I must differ most decidedly from this view. Intraperitoneal hæmatocele from tubal rupture may, I believe, become circumscribed as readily as one resulting from tubal abortion. The conditions are identical, except that in the one instance the product of impregnation escapes by a rupture of the tube, while in the other it escapes through the unclosed abdominal ostium. In the case of tubal abortion which I had the honor to present at the last meeting of this Society the hæmorrhage was circumscribed. Had the case been one of hæmorrhage into the broad ligament from rupture, the fimbriated extremity of the tube could not have opened into the circumscribed cavity. In this case, however, the patent abdominal ostium of the tube opened directly into the cavity of the hæmatocele, while the fimbriæ of the tube were spread out on the inner surface of the adventitious sac. Bland Sutton accepts, without question, the possibility of the hæmatocele becoming so circumscribed.

The decision of this question has a somewhat important bearing upon diagnosis and treatment. If, as Mr. Tait contends, all circumscribed hæmorrhages within the pelvis are beneath the broad ligament, the treatment would be expectant, operation not being per-

formed except in case of recurring hæmorrhage, continued life and growth of the fœtus, or suppuration of the hæmatoma. On the other hand, recognizing that an intraperitoneal hæmatocele may become circumscribed, it becomes necessary, in the presence of a distinctly limited hæmorrhage, to establish a differential diagnosis between circumscribed intraperitoneal hæmatocele and broad-ligament hæmatoma. While a broad-ligament hæmatoma should, in the ordinary course of events, be left undisturbed, an intraperitoneal hæmatocele must, in the great majority of cases, be subjected to operation.

In operating for circumscribed intraperitoneal hæmorrhage, the abdominal route offers far better opportunities for clean and thorough work than does the vaginal. The adhesions can not be safely dealt with through the vagina, nor can the diseased structures be completely removed without jeopardizing the integrity of the intestines.

V. *Primary Extraperitoneal Rupture.*—Operation is seldom, if ever, called for at the time of, or immediately following, extraperitoneal rupture. The hæmorrhage takes place, not into a cavity, but among the tissues, which serve as limiting walls, and prevent sudden, excessive hæmorrhage. Such cases demand careful investigation to ascertain, as accurately as possible for future comparison, the extent of the hæmorrhage and the relations and size of the resultant tumor. Examinations must be subsequently made at short intervals to determine whether the hæmatoma is increasing or diminishing.

VI. *Subsequent to Primary Extraperitoneal Rupture ; Fœtus Living.*—If repeated examinations demonstrate a progressive enlargement of the hæmatoma, a presumptive diagnosis of continued life and development of the fœtus is warranted. If the fœtus can be made out, and its growth demonstrated, the diagnosis becomes positive. In the event of the continued life of the fœtus, its removal by abdominal section should be accomplished without delay. Abdominal section for removal of the fœtus before the completion of the fourth month of gestation, while difficult and hazardous, can not compare, either in difficulty or hazard, with the operation when performed after this time. Owing to the growth of the placenta and the encroachment of the sac upon the surrounding structures, it then becomes one of the most trying and dangerous operations known to surgery. Secondary intraperitoneal rupture may take place at any time, and, if the placenta lies above the fœtus and is torn or partially dislodged, a most profuse hæmorrhage may occur, and the patient may die before measures for her relief can be adopted. To save the mother from both the extreme dangers of a late operation and the frequently fatal re-

sults of a secondary intraperitoneal rupture, operation should be at once performed when the continued development of the child is demonstrated.

In operation prior to the fifth month, after ligation of the ovarian artery, incision of the sac, and removal of the foetus, a choice must be made between a number of procedures, depending upon the nature of the case. Much will depend upon the condition of the sac and the location of the placenta. The most satisfactory and clean procedure, and the one especially indicated in an early operation, is the stripping of the placenta and membranes from the sac, ligation of bleeding points, and quilting together of the layers of the broad ligament. This method, so far as it relates to the removal of the placenta, becomes a necessity, in either an early or late operation, when the placenta lies above the foetus and is cut or dislodged during operation.

When the sac is not too friable, and the hæmorrhage, after removal of the placenta and membranes, can not be arrested by ligation of the vessels, or when the hæmorrhage is too free to permit of search for, and ligation of, bleeding points, the sac should be stitched to the edges of the abdominal incision and packed with iodoform gauze.

If the placenta is situated below the foetus, has an extensive and firm attachment, and its separation promises to be attended with severe hæmorrhage, the sac may be stitched to the edges of the incision, the foetus removed, and the placenta left *in situ*. The sac must then be packed with iodoform gauze, and extreme precautions must be taken to prevent infection of the placenta. On the fourth or fifth day, if not earlier indicated by evidences of decomposition of the placenta, the gauze should be withdrawn and the placenta removed. Its removal at this time can usually be accomplished without much hæmorrhage. If the operator prefers to assume the risks of suppuration of the placenta, he may, after removal of the foetus, cut the cord close to the placenta and leave the latter within the sac, closing the abdominal incision without drainage in the hope of absorption of the placenta taking place. I can not but look upon this procedure as both unsurgical and dangerous.

After the fourth month, owing to the increased size and extensive attachments of the placenta, and to the stripping up of the peritonæum from off the uterus, rectum, bladder, and abdominal wall, operation becomes most formidable. Here also much depends upon the location of the placenta as regards that of the foetus. If the placenta be below the foetus and attached to the pelvic floor, the foetus may be removed with but slight hæmorrhage. If the placenta is so favorably



located it may be left *in situ* for four or five days, when its removal can be much more readily and safely accomplished. When situated above the fœtus, and cut or torn in opening the sac, the placenta must be quickly and boldly detached and hæmorrhage controlled by plugging the sac with gauze and by the ligation of the vessels that can be reached. When operating in the late months, an extraperitoneal incision into the sac is advisable whenever possible, unless the complete removal of the fœtus, placenta, and sac has been decided upon.

This latter procedure, which has been performed in less than a score of cases, while most difficult, certainly more nearly approaches the ideal than does any operation which contemplates leaving the placenta *in situ* even for a few days. The underlying principle of this procedure consists in considering the fœtal sac as an intraligamentary cyst and treating it according to the methods adopted for this condition. After ligation of the ovarian artery, a free incision is made through the peritonæum of the broad ligament, care being taken not to incise the fœtal sac. Enucleation of the sac is then effected. Hæmorrhage from the placental attachment, while free, is not ordinarily excessive, and can be controlled by gauze packing. When the fœtal sac is ruptured during its enucleation, hæmorrhage is usually severe, and must be met by compression of the abdominal aorta and most rapid enucleation. After enucleation, gauze must be firmly packed against all bleeding points. This method of operation, although it promises better results, can not be advocated at the present time, as it has been employed in so limited a number of cases.

VII. *Secondary Intraperitoneal Rupture.*—When this occurs soon after primary extraperitoneal rupture, the immediate necessity for and the method of treatment indicated are practically the same as in primary intraperitoneal rupture. In late secondary rupture the methods advocated for the management of late cases of extraperitoneal gestation without rupture are to be employed. Immediate removal of the placenta is, however, generally a necessity.

VIII. *Subsequent to Death of the Fœtus.*—A dead fœtus, especially if death has occurred in the early months, may remain safely sepulchred within the tissues for months or years without the production of dangerous symptoms. It will rarely, however, so remain without producing annoyance and pain. Sooner or later, in the majority of cases, operation must be instituted for its removal. A fœtus which has remained quietly within the broad ligament for years may become infected, suppurate, and have to be removed. The further advanced

the gestation at the time of death, the greater becomes the probability of subsequent infection and suppuration of the foetus. Vaginal incision is preferable to abdominal section in these cases of suppuration.

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## ÆTIOLOGY AND PATHOLOGY OF EXTRA-UTERINE PREGNANCY.\*

BY W. H. RUMPF, M. D., CHICAGO.

*Ætiology.*—The ætiology of extra-uterine pregnancy can not be definitely stated until we have a more exact knowledge of the process of impregnation in normal pregnancy. It will be necessary to consider the latter in a few words. The ovum is normally carried into the uterus by the ciliary movement of the epithelial lining of the tube and by the peristaltic action of the tube toward the uterus. Added to this there may be some mechanical influence exerted by the peristalsis of the intestines, the force of gravity, respiration, capillary attraction, and voluntary movements of the muscles. This part of the migration of the ovum is much more easily explained than is the manner in which it reaches the tube.

The theory of the erectile nature of the fimbriæ and the ejaculation theory in which the ovum is in the first case drawn into the tube by the retracting arms and in the second hurled out of the follicle with considerable force, have been practically abandoned. The most natural course would seem to be the following: A ripe follicle bursts, and the ovum, surrounded by a somewhat sticky fluid, slowly emerges to the surface of the ovary. From here it may take two different courses: it may either get into the peritoneal cavity and die, or it may be taken along by the capillary stream until it meets one of the fimbriæ, and from there it will be helped into the pavilion of the tube by the ciliated epithelium.

The next consideration of importance is the place of impregnation. Nature has provided in the voluminous folds of the distal end of the tube an excellent meeting place for spermatozoön and ovum, and, if an analogy may be drawn from many experiments on animals,

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this is the place where fertilization usually takes place. The ætiological factors that would favor a lodgment of the fertilized ovum outside of the uterus—that, in other words, would cause an extra-uterine pregnancy—must be looked for either in the ovum itself or in the path along which it must travel to the uterus. Perhaps too little attention has been paid to a possible pathological condition of the ovum as a cause of ectopic pregnancy. The ovum, when discharged from the follicle, is surrounded by a structureless granular layer of protoplasm, which may have some function in permitting an easier coaptation of the ovum to the place where it finally becomes imbedded. How far a pathological condition of the ovum may influence this granular layer to premature activity is at present only a subject for conjecture.

A second ætiological factor may be found in an antiperistaltic movement of the tube. This may occur in consequence of fright or excessive sexual excitement, and may cause an ectopic imbedding of the ovum. The vast majority, however, of ectopic pregnancies point to a pathological condition of the tube as the primary ætiological factor.

Until recently the generally accepted opinion was that the destruction of the mucosa of the tube was necessary for the imbedding of the ovum. This was founded on the assumption that in normal pregnancy the most favorable condition for the lodgment of the ovum was created by the menstrual shedding of a part of the uterine mucosa. Bland Sutton (1), Veit (2), Hofmeier (3), Webster (4), Martin (5), and others have found that the mucosa is nearly normal at the place of insertion of the ovum. In other words, as an ovum will not imbed itself in a uterus whose mucosa is diseased, it will not imbed itself in an entirely diseased tube. The tube may contain evidences of acute or chronic salpingitis in many places, but at the place of imbedment of the ovum it is healthy. It is quite evident, however, how the various forms of salpingitis may form ætiological factors in ectopic lodgment of the ovum. The ciliæ may be destroyed to a greater or less extent and the ovum thus deprived of this necessary propelling force; or the tube may become partly occluded, permitting the passage of the spermatozoön only; or, finally, it may be closed completely, and fertilization may take place by the passage of the sperma through the healthy tube and across the abdominal cavity. Hernial pouches of the tube produced by protrusion of the mucous membrane through separated bundles of muscular fibers, as well as accessory tubes, constitute further predisposing conditions to ectopic gestation, and, finally,

mechanical obstructions other than those caused by inflammations within the tube itself may be present. In this category may be mentioned :

1. Abnormal convolutions of the tube due to congenital malformation.

2. Enlargement of the organs surrounding the tube.

3. Old inflammatory bands and adhesions.

*Pathological Anatomy.*—According to the place of attachment of the ovum, we make the classification of tubal, ovarian, and abdominal pregnancy. The first of these is again subdivided by the natural division of the tube into three classes—interstitial, isthmic, and ampullary pregnancy.

1. Interstitial pregnancy is not very frequent and is often confounded with pregnancy in the horn of a rudimentary uterus. According to Haecker (10), it occurs principally in women who have had several children. The left side is more frequently affected than the right ; in seventeen out of twenty-four cases Haecker found it insolvent. In the beginning of pregnancy a swelling in the horn of the uterus is noticeable, which becomes more sharply marked as pregnancy advances. The round ligament has a characteristic position. It lies lateral to the foetal sac, whereas in tubal pregnancy it is the median line. In its further development the interstitial pregnancy may approach nearer to the uterus and a tubo-uterine pregnancy may result.

2. Isthmic pregnancy may occur in the portion of the tube between the ampulla and the uterine insertion. This usually takes place in the middle of the tube, which is enlarged and fusiform in shape. The wall of the tube is either universally hypertrophied, or is thinned out at one particular spot. According to Werth, the posterior wall of the tube has a peculiar disposition to become thinned out.

3. Ampullary pregnancy is by far the most common form of ectopic pregnancy. If the ovum is lodged near the infundibulum of the tube, it may partly project into the abdominal cavity and give rise to a tubo-abdominal pregnancy, or it may lodge partly on the ovary and be called tubo-ovarian pregnancy.

So-called secondary forms of tubal pregnancy may occur in the following varieties: (*a*) intraligamentous and (*b*) secondary abdominal. In the first variety the ovum in its development gradually separates the two folds of the broad ligament, and as the muscular elements of the tube thin out they may finally disappear altogether, so that the foetal sac is formed entirely by broad-ligament folds, or the

ovum may rupture the tubal wall and lodge between the folds of the ligament underneath the tube. Secondary abdominal pregnancy will occur either when the fruit sac ruptures or when the ovum makes its exit entirely or in part through the abdominal end of the tube.

The course which extra-uterine pregnancy takes may be varied. All forms may be carried on to term, or may even remain in the body for years after the death of the foetus. In the majority of cases, however, the pregnancy is interrupted during the first four months. Either rupture of the sac or absorption of the ovum takes place. To the latter condition especial attention\* has been called by Werth (7). Without causing rupture of the sac walls, a considerable hæmorrhage may arise from the place of insertion of the ovum after the death of the foetus, which will usually flow through the abdominal ostium of the tube into the cavity and produce an intraperitoneal hæmatocele, or, if the ostium be closed, will produce a hæmatosalpinx. The causes assigned for the rupture of the tube are the increased pressure on the one hand and the weakening of the tubal walls through the penetrating chorionic villi on the other. When the latter undergo degeneration, as is often the case, this weakening influence is especially pernicious.

The origin of the hæmorrhage is in the placenta, and from there the blood flows in the direction of least resistance. The rupture of the foetal sac is not always coincident with the rupture of the tube; in fact, the foetal membranes seem to possess a greater power of resistance than the more friable tissues of the tube.

The tubal abortion may be of two kinds; either complete, in which the ovum is cast out entirely with only a few chorionic villi remaining, or incomplete—that is, more or less of the ovum is left in the tube. In both rupture and abortion a blood clot will be found at the place of insertion of the ovum, which may, especially in abortion, attain great dimensions. In these coagula may be noticed occasionally several concentric layers of different colors, showing that hæmorrhages have occurred at different periods. In every rupture and in most abortions we find that a free hæmorrhage has occurred in the abdominal cavity, which upon coagulation produces either a hæmatocele or a hæmatoma in the broad ligament.

I come now to some characteristic changes in those parts of the genital tract not directly affected by the pregnancy. All the organs participate in the hypertrophy. The vagina widens, its lumen becomes greater, the mucosa is more succulent and takes on a livid discoloration.

The changes in the uterus are more marked and more constant.



It becomes hypertrophied, the musculature thickens, the cavity enlarges, and the cervix becomes soft and patulous. The most conspicuous changes occur in the mucosa of the uterus and the upper portion of the cervix. This partakes entirely of the nature of a decidua, which is expelled at the death of the fœtus or at the end of pregnancy. This decidua is very constant. In forty cases Haecker (10) found only three in which it was not present. In these three the enlarged uterus showed a smooth surface covered with a slightly sanguinolent mucus. If the decidua is present, the mucosa has no smooth surface, but is furrowed by more or less deep grooves.

The microscopical appearances of the mucosa in ectopic pregnancy was first clearly described by Ercolani and afterward by Langhans (11), Leopold (9), and many others. Langhans found in a two months' tubal pregnancy almost the identical condition that the mucosa presents in a four months' intra-uterine pregnancy. Three layers can be plainly discerned. A deeper one, in which the glands are slightly developed; a middle layer, in which they are greatly widened out; and a superficial one, in which there is a very compact layer of large decidual cells. He found the boundaries of these layers less strongly marked than in normal pregnancy. The nearer to the uterus the implantation of the ovum, the more conspicuous are these changes in the mucosa. The musculature likewise hypertrophies.

The uterus may attain a length of from ten to eighteen centimetres. Having attained a certain size, corresponding to about the third month of normal pregnancy, its development stops, and frequently even involution takes place. The latter is always the case as soon as the extra-uterine pregnancy is arrested in its development. In the latter case the uterine decidua is thrown out, generally in its entirety, presenting a perfect cast of the cavity. The decidua is from three to seven millimetres thick.

Microscopic changes in the ovum are as follows: The chorionic villi are covered by a double layer of epithelium, one arising from the fœtus, and the other, the so-called syncytium, from the tube. In the examination of coagula derived from an extra-uterine pregnancy great importance attaches to the finding of chorionic villi. Decidual cells are only rarely found, but that they are found in tubal pregnancy is admitted by all investigators. The origin of the decidua is explained in three different ways:

1. From white blood-corpuscles.
2. From glandular epithelium.
3. From connective-tissue cells.

The consensus of opinion seems to favor the latter way. The connection between the chorion and decidua serotina is not so intimate as in uterine pregnancy. The formation of a decidua vera is confined to the immediate neighborhood of the ovum. The presence of a reflexa can undoubtedly be proved in a great many cases. The further development and construction of the placenta is exactly the same as in uterine gestation.

Microscopic findings in the fruit sac are as follows: In most freshly ruptured cases hyperplasia and hypertrophy of the muscular elements of the tube can be found. With increasing growth of the ovum the fruit-sac walls become continually thinner, so that in some places the wall consists only of fibrillary connective tissue, the muscular elements disappearing completely. The vessels are always found in great abundance, and we often notice hæmorrhages into the surrounding connective tissue. The muscular hypertrophy may, however, continue until the end of pregnancy.

The peritonæum gives rise to many interesting changes. Fibrinous exudates are frequently found on the peritoneal covering of the affected organ, which may cause pseudo-membranes and adhesions with neighboring organs. Occasionally hypertrophy of the peritoneal epithelium has been found, a condition which Walker (6) and Dobbert (12) have described as characteristic of abdominal pregnancy. The enormous vascularity is also much marked.

Although the cases are few, there are undoubtedly some reliable reports of ovarian pregnancy. The ovary forms the foetal fruit sac and enlarges accordingly. Three distinct layers are described: An outer layer, poor in cells; a middle layer, rich in cells and containing numerous corpora lutea; and lastly a layer of endothelial cells lining the cavity of the fruit sac.

The fruit sac in abdominal pregnancy shows varied formations. Cases have been described in which the ovum was found in a peritoneal sac, shut off entirely from the rest of the cavity. The placenta was inserted in the wall of this sac. In a second variety of cases the ovum was also shut off from the general peritoneal cavity by adhesions of the neighboring intestines, mesentery, and peritonæum. A third variety has been reported in which only a partial shutting off was effected by intestinal adhesions, and finally some cases have been observed in which the chorion, amnion, placenta, and foetus lay free in the abdominal cavity. The critique of the cases of abdominal pregnancy must be very strict, and all cases in which muscular fibers are said to have been found in the sac wall may be considered to

have had a primary tubal origin. Undoubtedly an analogous condition is found in the lower animals, but this is more easily accounted for by the less firm insertion of the placenta. A perfectly described case of undoubted abdominal pregnancy does not exist.

*Fate of the Fœtus.*—In all cases of undisturbed ectopic pregnancy the fœtus dies sooner or later, with the exception of the very rare cases of interstitial pregnancy, where the fœtus may develop toward the uterine end of the tube and finally escape *per vias naturales*. Dissection has shown that the deaths have been due to asphyxiation. If the fœtus gets into the abdomen in the early part of its existence, it may be completely absorbed.

In older fœtuses we find either a sort of mummification leading to a formation called lithopædion, or a maceration of the soft parts, only the bones remaining. In the latter condition suppuration and breaking through into neighboring organs may result. The lithopædion formation is certainly a less dangerous condition, and a fœtus thus changed may remain in the body indefinitely.

It must, in conclusion, be mentioned that in most fœtuses carried to term, we find some sort of malformation in consequence of the cramped conditions and the impaired nutrition.

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## DIAGNOSIS OF ECTOPIC GESTATION.\*

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In presenting a few of the important points connected with the diagnosis of ectopic pregnancy, I must admit that there is little or nothing new to offer. During the last six or eight years there has been no great advance in this field. At least no new diagnostic criteria of especial worth have been discovered or established. While little by little the pathological anatomy of this condition is becoming better known, and while the principles and methods of treatment are being established and the therapeutic results are constantly improving, the advance in diagnosis consists chiefly in the fact that attention is being called more and more to the frequency of the condition. All practitioners of medicine, both general and special, now keep in mind the possibility of the occurrence of ectopic gestation, and thus many cases are discovered which were formerly overlooked. The fact that hæmatocele and hæmatoma are almost always due to ectopic pregnancy is now generally recognized as such by specialists, and is becoming universally understood.

The increased interest in the subject has improved diagnosis. On the other hand, the proposition to curette the uterus in order to obtain uterine decidua for microscopic examination which was made a few years ago and which, it was hoped, would prove a great addition to our diagnostic resources, has been somewhat disappointing.

With the supposition that a uterine decidua always existed in pregnancy, which could be easily demonstrated by the microscope, and thus prove the existence of pregnancy, and that the presence of decidua and the absence of foetal membranes in the uterus proved the existence of ectopic pregnancy, curettage in suspected cases seemed a most reasonable procedure. The fears were urged that curettage would provoke uterine contractions, and contractions of the tubal sac do not seem to have been realized, for curettage has proved no more dangerous than bimanual palpation. The danger of producing abortion in intra-uterine pregnancy is shared by the introduction of the sound to determine the condition of the uterine cavity. This danger

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one is fully justified in incurring on account of the great importance of establishing a diagnosis. The results of the procedure, however, have been disappointing. Wyder, the advocate of the method, failed in his first case. Martin has failed twelve times. In five cases he did not find decidual tissues. The cases were nevertheless operated on and tubal pregnancy found. In other cases tissues that were considered decidual were found in cases of gonorrhœal salpingitis.

This failure to find characteristic decidual tissue can not be due to absence of those decidual changes of the uterine mucous membrane first described by Ercolani, and since confirmed by so many other observers. It is more probably explained by the occurrence of degenerative changes in the uterine decidual membrane which are not yet fully understood. The various descriptions of this membrane do not correspond in all respects. The investigations of Dobbert are among the latest, and his results agree substantially with those of Langhans and others in showing three layers—the superficial compact layer of decidual cells without glands, the middle spongy layer with dilated gland spaces and little connective tissue, and the deeper layer with the base of the glands and comparatively unchanged connective-tissue cells. After spontaneous expulsion of the decidual membrane only patches of the inner layer were found, which of course one might easily fail to recognize as decidual. The superficial and glandular epithelium of the outer layers sometimes disappears more or less completely. When present, the cells are shorter and more cubical. The transformation of the uterine membrane into a decidual membrane takes place more rapidly when the foetus is located near the uterus, as in an interstitial pregnancy. The change may not be as great in an ampullar pregnancy of three months as in an interstitial pregnancy of one and a half month. Certain changes of a degenerative nature sometimes occur in the superficial decidual layers, even when they remain *in situ*, which tend to render them less recognizable and to lessen their diagnostic value. These changes have not been sufficiently studied, and the fact remains that inability to find decidual tissue is not proof of the absence of pregnancy.

Can decidual tissue exist, however, without the presence of pregnancy? The claim that was made by C. Ruge some years ago, that decidual cells are sometimes found in cases of endometritis, has not been recently supported, and the three cases of Ruge, Leopold, and Overlach still stand alone. The criticism of Wyder has shown that in none of these cases was pregnancy absolutely excluded. Attention has also been recently called to the fact that decidual cells may pene-



trate the muscularis and be found some weeks or even months after the close of pregnancy. I recall a case of this kind reported by Chiari. Therefore, in the absence of other confirmatory observations, I think the cases of Ruge and Overlach can no longer be used to controvert the long-established doctrine that the production of decidual cells occurs only in pregnancy. There may be more uncertainty concerning the changes in the glandular and superficial epithelium. In general it must be admitted that the presence of decidual membrane is proof of pregnancy. Of course the presence of fœtal structures—for example, chorionic villi—shows uterine gravidity and so speaks against extra-uterine gestation.

It remains true, however, that this proposed method of making a sure diagnosis of extra-uterine pregnancy has proved to some extent a failure, and the uncertainty in diagnosis which still exists is well illustrated by the statistics of von Schrenck, who found only two hundred and twenty-one correct diagnoses out of six hundred and ten cases.

In considering the subject of differential diagnosis it will be convenient to make two periods of ectopic gestation—namely, the first four months and the later months. The first period is the most important, since few cases progress beyond it. In the first period the diagnosis can never be absolute unless the presence of an undoubted *decidua graviditatis* can be found in the uterus with no chorionic elements. In the second period an absolute diagnosis can be made from the fœtal heart sounds and the movements of the fœtal body.

The diagnosis must deal with the changes produced by pregnancy in various locations. These we classify as interstitial or tubo-uterine; isthmic; ampullary; infundibular, or tubo-abdominal, or tubo-ovarian; and cornual. We must also observe the changes produced by extra-peritoneal and intraperitoneal rupture of the fruit sac, complete and incomplete tubal abortion, the resulting hæmatocele and hæmatoma, and the death of the fruit followed by absorption, maceration, mummification, calcification, or suppuration.

The diagnosis is made by study of the symptoms and by physical examination. The chief symptoms of importance in diagnosis are irregularity of menstruation; pain; effects of internal hæmorrhage; milk secretion; urinary manifestations, (*a*) vesical, (*b*) renal; bowel and reflex manifestations.

Nothing need be said of reflex symptoms, such as vomiting, etc., as they do not differ essentially, as regards severity or frequency of occurrence, from those of normal pregnancy, and hence are of value only in determining the presence of pregnancy.

Mechanical obstruction of the bowel may occur when the fruit sac is located in the pouch of Douglas, but is more liable to occur when a perirectal hæmatocele exists.

Painful micturition and other bladder symptoms are not more common before rupture of the sac than in intra-uterine pregnancy; after rupture they depend on the amount of the hæmorrhage and the resultant pressure. They have no special diagnostic value.

Eclampsia and severe kidney disease are so frequently noticed as to be of some diagnostic significance.

The milk secretion has no diagnostic value except in determining the existence of pregnancy.

The symptoms due to hæmorrhage, such as shock, dyspnœa, etc., are rarely absent after rupture, and indicate by their severity the amount of hæmorrhage. These symptoms, together with those of pain and irregularity of menstruation, are by far the most valuable of all the symptoms, and generally raise the first suspicion of the condition.

Pain in the first period, aside from the pressure symptoms caused by the growing tumor or hæmatocele, is generally of a colicky character, and is probably due chiefly to uterine contractions. In connection with the discharge of pieces of decidual membrane from the uterus this symptom is very important. Rupture of the fruit sac is usually but not always accompanied by pain. Veit and Martin call attention to the fact that recurring pains in the side, accompanied by symptoms of hæmorrhage, indicate tubal abortion. After the fourth month abnormal location of the child may give rise to pain. Peritonitis may also be present and cause pain.

Persistence of regular menstruation is rare. Amenorrhœa was found by Fraenkel in twenty-six out of fifty-four cases, and by Martin in thirty-two out of fifty-seven cases. In nearly half of the cases menstruation occurs at irregular intervals, varying in quantity from a few drops to profuse hæmorrhage. The menstrual discharge often contains pieces of decidua which may be of great diagnostic value.

In determining the existence of ectopic pregnancy physical examination is of prime importance in all stages, while in the first period, before rupture of the sac, it is almost the only means of diagnosis. I include under physical examination not only bimanual exploration, but also the use of the finger, sound, and curette for exploring the uterine cavity.

The importance of physical examination is so great that all aids to its efficiency should be employed. One of the most valuable aids

is narcosis, which should never be omitted when a satisfactory examination can not otherwise be made.

I must, however, call especial attention to the dangers of all physical examinations, including bimanual palpation, sounding, and curetting. Numerous cases have been reported where rupture of the sac has occurred during an examination. The physical examination is so important that this danger must be risked, but it is only right that before undertaking it preparation should always be made for immediate operation if indicated. Anæsthesia is a source of danger on account of the vomiting and struggling of the patient.

The necessity of preparation for immediate operation before beginning an examination has never been sufficiently emphasized. The danger from examination would be realized if all the patients who have died and all the cases of ectopic pregnancy in which rupture has occurred during examination were collected. Such a collection would be impossible, because data are rarely given. I know of one fatal case, and have myself produced a rupture during examination. My experience, and the impression gained from reading the casuistic literature, induced me to emphasize the rule I have given.

The uterine sound is employed generally in the second period to find out whether or not the uterus is empty. It is also used in suspected two-horned uterus to determine the patency of the canal connecting the uterine cavities. It is not necessary to call attention to the danger of perforating the uterine wall. The risk of producing an abortion is justifiable if the diagnosis between extra-uterine and intra-uterine pregnancy can not otherwise be made.

The use of the curette for obtaining decidua for examination has already been considered.

In employing these means of diagnosis I call your attention to the most important conditions which demand differential diagnosis—namely, intra uterine pregnancy, retroflexed uterus, uterine myomata and tumors of the annexa.

*Differential Diagnosis between Intra-uterine and Extra-uterine Pregnancy.*—While in all other cases the differential diagnosis is a problem of the first period, the chief difficulties in this case are in the second period. Before the fifth month the uterus may generally be distinguished from the ectopic fruit sac by bimanual palpation. Before rupture of the fruit sac the difficulties arise only in cases of interstitial pregnancy and cornual pregnancy. When the egg lies in the middle or outer end of the tube the determination of the fruit sac as a tumor, independent of the uterus, is easy. A rudimentary horn is also fre-

quently separated from the developed part of the uterus by so long a pedicle that it is easily found to be apparently independent of the uterine body. In such a case it is of no importance that the cornual pregnancy can not be differentiated from a graviditas isthmica or graviditas ampullaris, for the treatment is the same in all cases. In other cases the tumor of a cornual pregnancy, like that of an interstitial gestation, can not be distinguished from a gravid uterus by palpation. The insertion of the round ligament into the external surface of the tumor sac can very rarely be determined by physical examination. A corresponding irregularity in the shape of the uterus would not excite attention. Before rupture, symptoms of pain and collapse are not present. The only thing that can call attention to an interstitial or cornual pregnancy before rupture is irregularity of menstruation. Should such irregularity, together with the discharge of decidua, lead to the suspicion of an abnormally located egg, the exploration of the uterine cavity by the finger or sound is indicated. The especial importance of an early diagnosis of interstitial pregnancy is evident, because the rupture of the sac leads to the most dangerous form of hæmorrhage. The rarity of this condition is an element in diagnosis. Martin found only one case out of ninety-one.

After rupture of the sac the symptoms of pain and shock, in addition to the character of the frequent uterine discharge and the physical examination, make the differential diagnosis between intra-uterine and extra-uterine pregnancy comparatively easy.

It is also not difficult to establish the existence of a recent retro-uterine hæmatocele or of a hæmatoma by physical examination. Only in cases where the uterus is surrounded by large quantities of blood is the distinguishing of its contour difficult. Here the symptoms are sufficient to make such a differentiation superfluous.

Many mistakes have been made in the differential diagnosis between extra-uterine and intra-uterine gestation in the second period—that is, after the fourth month, and these mistakes are the most annoying. Should such a mistake lead to a laparotomy, and the discovery of a normally implanted egg, it would be a mistake that could not be hidden. To distinguish the uterus from the fruit sac by palpation is often impossible, because the uterus changes so that it feels like a part of the wall of the sac. The shape of the sac has been mentioned as a diagnostic sign, but this is evidently of no value. The more lateral location of the tumor holds true only till the sixth month. The same may be said of the value of the other diagnostic points, such as the statements that the foetal parts may be better felt and the heart

tones better heard through an extra-uterine sac. The unusual pressure and the kidney symptoms are to be remembered. More pain may be present, which may be due to displacement of organs and of the peritonæum, and peritonitis may even occur, but it is remarkable how little subjective disturbance from this cause is present as a rule. The history of symptoms and the irregular menstruation are of some value. In doubtful cases the use of the sound is indicated and justifiable.

*Differential Diagnosis between Extra-uterine Pregnancy and a Retroflexed, Enlarged, or Gravid Uterus.*—A number of mistakes of this kind are reported each year. Many of them are serious, for they often lead to efforts to replace the supposed dislocated uterus, and consequent rupture of the abnormal fruit sac. Only the first period of pregnancy is here concerned.

Before rupture, the condition which simulates a retroflexed uterus is a tubal sac lying in the pouch of Douglas. Careful bimanual examination in narcosis should be sufficient to distinguish the condition, although it must be admitted that a long cervix in the case of a retroflexed uterus often feels like a small uterine body lying on a post-uterine tumor. Repeated examinations should clear up the diagnosis in most cases without the use of the sound.

After rupture of the sac the retro-uterine hæmatocele must be considered. Here the history and symptoms of hæmorrhage, with the examination, are sufficient to clear up the diagnosis.

*Differential Diagnosis between Subserous Myomata of the Uterus and Ectopic Pregnancy.*—Here also only the first period is concerned. Before rupture, interstitial and cornual pregnancy and the isthmic and ampullar varieties of tubal pregnancy are to be differentiated from a more or less pediculated myoma. The consistence of the tumor is generally sufficient to establish the diagnosis. If not, the decidua can be examined.

*Differential Diagnosis between Tumors of the Annexa and Ectopic Pregnancy.*—Here the difficulties are also in the first period. Before rupture of the fruit sac, in the absence of symptoms of pregnancy, the diagnosis by bimanual palpation may be difficult. A gravid tube feels very much like a hydrosalpinx or pyosalpinx. Veit says that the tumor of pregnancy is softer and not so elastic as a cyst of the tube. The enlargement of the uterus in ectopic pregnancy is not to be forgotten. The examination of the uterine decidua will probably clear up the diagnosis. The greatest difficulties arise when there is a concurrent extra-uterine and intra-uterine gestation. Such a condition is not



very rare, probably not more uncommon than twin pregnancies, which Churchill estimates as one in ninety. Von Schrenck reports forty-three cases in which a correct diagnosis was made but twice. Here all symptoms, as well as examination of the uterine decidua, are absolutely without diagnostic value, if not misleading, before rupture of the fruit sac.

After rupture, the differential diagnosis is not difficult, for the symptoms and the presence of blood in the pelvis are sufficient to determine the existence of the condition. The concurrent presence of a sactosalpinx and a tubal pregnancy is not rare. As the therapy is the same in both cases, the impossibility of certainly diagnosing this condition is not of so much consequence.

It is not necessary to speak of the differential diagnosis between ectopic pregnancy and hæmatocele. Practically, all cases of hæmatocele are due to ruptured gravid tubes. The elaborate theories and classifications of Bernutz and others of former years are not supported by observations, but are, on the contrary, opposed to the results of all recent investigations. Hence, the attempt to distinguish between hæmatoceles due to different causes may well be given up.

In closing this necessarily brief synopsis of the chief diagnostic points of ectopic pregnancy, I will simply repeat that the recognition of the comparative frequent occurrence and great importance of ectopic pregnancy has done much toward preventing the neglect of the cases which formerly obtained. The diagnosis never can and never will be made with certainty in all cases, and must depend, as in the diagnosis of other pathological conditions, on the proper estimation of various symptoms, among which the most important are pain, irregularity of menstruation, and symptoms of internal hæmorrhage, and upon skillful physical examination.

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A NEW METHOD OF PERFORMING VAGINAL  
FIXATION.\*

BY HIRAM N. VINEBERG, M. D.

My object in presenting this preliminary report is to place myself on record as having devised this method independently of any one else. I incidentally referred to it in a short paper on the Indications for Vaginal Fixation, read before the Obstetric Section of the Academy of Medicine, February 27, 1896, and mentioned two cases in which I had followed it †. Although I make no claim of priority, I feel I am entitled to originality of conception. The train of thought and consequent procedure of action has been so similar with Wertheim, of Vienna, and myself, that the charge of plagiarism might be readily made by either of us were it not excluded by the chronicle of events.

During the past four months gynæcological literature, in Germany at least, has devoted a great deal of attention to the subject of the difficulties encountered during pregnancy and labor after ventral and vaginal fixation of the uterus. On studying Miländer's report ‡ of cases of dystocia following ventral fixation, I was struck with the circumstance that it occurred solely in cases operated on after the Leopold method, in which the fundus was sutured directly to the abdominal wall, and that no difficulty was met with in cases operated upon after Olshausen's method, in which the uterus was fixed by suturing the round ligaments and a portion of the broad ligament. The dystocia occurring after vaginal fixation was due to the same condition as obtained in ventral fixation with Leopold's method—*i. e.*, it was due to a too extensive and firm union of the fundus with the vagina. The thought then occurred to me that Olshausen's method could be carried out in vaginal fixation, with the simple difference that for the point of fixation the vaginal would be substituted for the abdominal wall. Although I myself had not met with any disturbances in pregnancy and labor after vaginal fixation, and none had been observed in cases operated upon after a method similar to that

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\* Read before the New York Obstetrical Society, April 7, 1896.† *Medical News*, March 14, 1896.‡ *Zeitschr. für Geburtsh. und Gynäk.*, Bd. xxxiii, Heft 3.

which I had been practicing, still I determined to fix the uterus to the vagina by suturing to it the round ligaments instead of the fundus. This mode of procedure, if successful, I thought would be valuable in women still in the fruitful period, as it would entirely preclude the possibility of dystocia as a result of the operation.

The first opportunity presented itself on February 4, 1896, when I was operating on a patient thirty-five years old, who had a retroflexion of the third degree, descensus of the first degree, laceration of the cervix, cystocele the size of a hen's egg, and relaxation of the posterior vaginal wall.

After making the usual incision the fundus was delivered, and then the annexa, which were visually inspected, and a few cysts in one ovary punctured. The annexa were then returned. A suture of silkworm gut was passed on either side, about two centimetres from the horn of the uterus, embracing the round ligament and a portion of the broad ligament. The fundus was then replaced, and the sutures carried through the vaginal flaps at a point immediately behind the pubic arch, and laterally where the vaginal wall is reflected to the side of the pubic rami. Next an anterior colporrhaphy was done and the vaginal flaps sutured in the usual way. An amputation of the cervix and a perinæorrhaphy completed the series of operations.

The uterus was in fair position after the operation, not, however, so well forward and lying against the vaginal wall as in my other cases of vaginal fixation. I operated on a second case two days later, following the same technique with one addition. I carried an additional suture across the anterior surface of the uterus midway between the os internum and the fundus and through the vaginal flaps. A suture thus placed could not possibly be the means of bringing about a condition (too extensive and firm union of the fundus) which could give rise to trouble in pregnancy or at labor, but would make more certain the permanent results of the operation. My experience thus far bears out the correctness of the latter assumption. The first case shows a tendency to relapse; the fundus now lies midway between the promontory and symphysis pubis. In the second case the uterus is in an ideal forward position, and, judging from my experience with other cases, I am safe in saying that it will remain in good forward position.

To recapitulate the technique :

1. Longitudinal incision in the anterior vaginal wall and free dissection of the flaps on either side.
2. Transverse incision of the peritoneal fold.

3. Delivery of the fundus if there exists any suspicion of disease of the annexa, otherwise bringing it well into the incision. In this step traction sutures and volsella should, if possible, be avoided. If there be no firm or extensive adhesions the uterus may be anteverted by passing two fingers through the peritoneal incision over the fundus and bringing it forward. Pressure over the pubes with the hand may materially assist in this procedure.

4. Passing a suture either of silk or silkworm gut (catgut would be absorbed too quickly) on either side around the round ligament and a portion of the adjacent broad ligament at a point one or two centimetres from the horn of the uterus.

5. Passing a transverse suture across the anterior surface of the uterus midway between the os internum and fundus.

6. Carrying the round-ligament fixation sutures through the vaginal flaps on either side at a point corresponding to the lateral sulcus of the vagina immediately behind the pubic arch, and carrying the uterine fixation suture through the vaginal flaps a centimetre from their margin.

7. Closing the peritoneal slit with a continuous catgut suture.

8. Closing the vaginal wound by a continuous catgut suture.

9. Fixation sutures to be removed at the end of three or four weeks.

Now as to Wertheim's work in the same direction. In the *Centralblatt für Gynäkologie* (No. 2) for January 11, 1896, there is an article by him, *Ueber Verlauf von Geburt und Schwangerschaft bei vaginofixirtem Uterus* (The Behavior of Labor and Pregnancy in a Vaginofixed Uterus). At the close of the article he refers to the fact that Olshausen's method in ventral fixation had not been attended with difficulty at labor. "Perhaps," he adds, "this circumstance may lead to a corresponding modification of vaginofixation. It is certain that in this operation it is possible to fix the adjacent structures of the round ligaments instead of the body of the uterus."

The journal containing this article did not reach me until the first week in February, when I had already done my first case. It did not influence me in my second case, as I modified my method of procedure as detailed above—and shall do so in the future—as fixation by the round ligaments alone, in my opinion, does not afford a sufficient guarantee of permanent results.

Wertheim has another article in the *Centralblatt für Gynäkologie*, 1896, No. 10, March 7th, entitled *Neue Methode der Vaginalen Antefixatio Uteri* (New Methods of Antefixation of the Uterus).



In this paper he reports five cases in all. In two of them, on closing the slit in the peritonæum the round ligaments were sutured to both angles of the peritoneal wound and not directly to the vaginal wall. He recognizes the uncertainty of the result attending this method. In two other cases the ligaments were sutured directly to the vaginal flaps. In the fifth case he did what he terms "a vaginal Alexander-Adams operation." The round ligament was shortened as follows: The ligament at its exit from the uterus was sutured to another portion of it from seven to nine centimetres distant. The intervening part was disposed of by the formation of a fold. Every one will recognize the similarity of this procedure to that devised by one or more Fellows of this Society, and known as "shortening of the round ligaments within the abdomen."\*

Six days ago I operated at St. Mark's Hospital on a third case, following exactly the same technique as in the second case. I desire to state here that three days ago, the last time I saw the second patient on whom I had operated, she complained of occasional stitches above both Poupart's ligaments. The uterus was in good position; there was no sensitiveness on pressure over either annexa, which appeared to be normal. The symptom was evidently due to dragging upon the round ligaments, and, I believe, is not an uncommon one after Alexander's operation.

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## ANTERIOR SUSPENSION OF THE UTERUS AND SHORTENING OF THE ROUND LIGAMENTS BY VAGINAL SECTION.†

BY HENRY T. BYFORD, M. D., CHICAGO.

Since Dührssen and Mackenrodt first published their methods of vaginal fixation of the uterus, the medical periodicals have been so full of these operations and their modifications that it would be superfluous for me to give to the members of this Society a historical review of the subject. Presuming, therefore, upon your familiarity with

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\* The objections to intraperitoneal shortening of the round ligaments has been well stated by Dr. C. Cleveland.

† Read before the Chicago Gynæcological Society, April 17, 1896.

what has been accomplished, I will briefly describe an operation devised by me, which is practically a development from these procedures. It consists, briefly, in (1) anterior colporrhaphy; (2) suture of the fundus uteri to the peritoneal covering of the upper portion of the bladder; (3) suture of the round ligament to the uterus above its normal uterine insertion at a point as far toward the pubic end as can be grasped; and (4) closure of the vaginal wound in such a way that the bladder regains its vaginal and uterine attachments, and the connective tissue from either side of the anterior fornix is drawn together in front of the uterus and forces the cervix backward.

The steps of the operation are as follows: Dorsal position. Thorough disinfection of the shaved vulva and perinæum and the vagina with soft soap and scrubbing brush or gauze, then with alcohol, and finally with corrosive-sublimate solution. Curettage of the uterus, and disinfection of the endometrium (corporeal and cervical) with ninety-five-per-cent. carbolic acid. A strong silk thread is then passed through both lips of the cervix, which is used to draw the uterus toward the vulva, the vaginal walls being held apart by retractors. A transverse vaginal incision three centimetres long is made immediately in front of the cervix, and the bladder is separated from the uterus by the finger. A median incision is made from the middle of the transverse incision, forward along the anterior vaginal wall for five centimetres, and the bladder separated from the vagina one or two centimetres on either side. The finger then tears through the peritonæum at its junction with the uterus, and examines the appendages. If the latter are adherent, they can usually be released, and if badly diseased, they can be drawn into the vagina and treated or removed, and small fibroids, if present, can be removed from the uterine walls.

After drawing down the cervix and retracting the anterior vaginal wall and bladder with a long retractor, the anterior uterine wall is exposed to sight and grasped with tenaculum forceps. A curved hæmostatic forceps is then passed up behind the bladder, under guidance of the finger, and made to grasp the bladder peritonæum and pull it down into view, and another forceps applied higher up to gently pull the parts down, and so on until the peritonæum, which was over the top of the bladder and behind the upper portion of the symphysis pubis, can be seen. Two long sutures of chromicized catgut are passed through the peritonæum at this point as high as possible and about a centimetre and a half to either side of the median line, and the bladder released, except as it is held by

the long catgut sutures. The anterior wall of the uterus, already grasped by tenaculum forceps, is pulled into the vaginal opening, and the sutures are passed through the fundus uteri about the same distance on either side of the median line as they have been passed through the bladder peritonæum. This is easily done by the aid of a curved needle on a handle. All blood is now sponged out of the pelvis and the sutures tied and cut off, bringing the fundus uteri firmly up against and over the bladder about an inch behind the pubic bones.

The suspended uterus is now exposed by the vaginal retractors, whereupon the origin of the round ligaments can be seen. The index finger or a hæmostatic forceps pulls a loop of the left round ligament out into the vagina and draws it down until it is taut. Then a chromicized catgut suture is passed through it as near the inguinal end as practicable, and also through the anterior uterine wall directly above the visible place of origin of the ligament, and is tied. This draws the parts together, and the shortened ligament acquires an attachment a trifle nearer the fundus than before. The same is done on the right side, and thus both round ligaments are shortened and the general peritoneal cavity practically shut off.

In closing the wound, the sutures, which should include the connective tissue under the bladder, are passed transversely, beginning at the end nearest the vulva, and restore the bladder to its original relation with the vagina. The transverse incision in front of the cervix is now closed by sutures so placed as to draw the two ends, which were three centimetres apart, together in the median line, thus not only drawing the connective tissue together in front of the cervix, but also lengthening the anterior vaginal wall and pushing the lower end of the cervix backward. A few inches of a narrow strip of iodoform gauze are pushed into the wound and the end left hanging out near the cervix. It is removed in twenty-four hours. The patient is kept in bed for three weeks. No pessary is required.

After the operation bimanual examination shows the cervix to be eight or ten centimetres from the subpubic ligament, and the fundus to be over the bladder and behind but not over the pubes—that is, the uterus is in a normal position. In my first case I sutured the uterus to the bladder but did not shorten the round ligament, and had occasion to immediately open the abdomen from above to remove some omental tumors discovered during the operation. I saw the fundus uteri behind the pubes in about normal position and attached to the upper portion of the bladder, the sutures being con-

cealed. I put in another suture from above, but the knot of this one, unlike the others, was exposed in the peritoneal cavity and demonstrated the advantage of introducing the sutures from below.

#### CASES.

I have done this operation eight times, although in my first operation I did not shorten the round ligaments, and in the last only I closed the transverse incision so as to approximate the ends instead of the sides. The operations were done on the following dates of this year : February 5th and 11th, March 11th (two cases), 12th, 17th, 24th, and 28th.

CASE I.—Mrs. C. had retroversion ; had been almost bedridden for two years, and was unable to come to my office for examination. I removed an enlarged ovary with a large corpus luteum hæmatoma, and then some small fibroid tumors of the omentum, by an abdominal incision. I found a trace of blood on either side of the bladder that came from the raw surfaces on the anterior wall of the cervix uteri. This would have been prevented had I shut off the peritoneal cavity laterally by shortening the round ligaments, as in my later cases. The patient now has no abnormal symptoms and is growing strong.

CASE II.—Mrs. C. Retroversion ; enlargement of both ovaries ; prolapse of the left ovary. Unable to come to my office. Attacks of intense pelvic pains requiring opiates for their relief, and deterioration of health. Came to my office two months after operation. No attacks of pelvic pain since operation. Uterus in normal position. This patient had a temperature of  $102^{\circ}$  during the second week. Fearing an abscess, I forced my finger into the tissues above the cervix for half an inch at the end of the second week, but found very strong union of the parts and no pus, although she complained of pain and tenderness in the bladder. Both pain and temperature subsided upon the administration the same night of one full dose of morphine. Whether the catgut became infected or not I can not tell, but no pus was found. The disturbance was probably due in a great measure to the restlessness following the sudden stopping of the opiate which she had previously taken for pain. Bladder symptoms have disappeared.

CASE III.—Miss McC., virgin. Retroversion, endometritis, and enlarged ovaries. Hysterical. Chronic sufferer in spite of treatment. Normal temperature from time of operation. A slight pain in left iliac region similar to that before operation was felt during the first

week she was allowed out of bed, but it has since disappeared. No bladder symptoms.

CASE IV.—Miss W. Retroversion, endometritis, and enlarged ovaries. Patient had suffered a long time, and was obliged to give up her position in a store. Vaginal entrance was so small that a speculum examination was impossible. No unusual difficulty experienced in performing the operation. No elevation of temperature after operation. All symptoms have so far disappeared, except a feeling of general weakness.

CASE V.—Miss Jennie M., virgin. Unable to work. Neurasthenia, pelvic pains, etc. Operation performed in public hospital. Temperature during third week  $101^{\circ}$  to  $102^{\circ}$  F. Shallow pit at site of gauze drainage probably due to catgut infection. Uterus normal in position. An old pain in the left leg is all she complains of.

CASE VI.—Miss Y., virgin. Retroversion, endometritis, and enlarged ovaries; right ovary size of large egg and cystic. Invalidism for years. Removed right ovary. Patient got up out of bed during the second week. No symptoms referable to operation except slight infection of bladder from prolonged use of catheter.

CASE VII.—Mrs. O. Prolapse of uterus, cervix appearing at the vulva, with anterior and posterior colpocele. This was the first case in which I drew the ends of the transverse incision together in the median line. I also removed a longitudinal strip of vaginal tissue on either side of the median-line incision so as to narrow the vagina. Emmet's perinæorrhaphy. This case presented more difficulty in suturing the uterus and ligaments than the virgin cases, on account of the redundancy of tissue.

The uterus has, so far, remained in position in every case.

This method of operating possesses, I think, the following recommendations:

1. It is not a dangerous method in competent hands.
2. It is efficient.
3. It possesses an advantage over vaginal fixation in that the position of the uterus is normal, the bladder resumes its normal relation to the uterus and vagina, and there is only slight liability to complication in childbirth. The attachment of the fundus is peritoneal and less firm than that from ordinary ventral fixation, and will undoubtedly stretch during pregnancy.
4. It is more easily performed than Alexander's operation, and there is greater certainty of its successful completion.
5. It gives access to the peritoneal cavity and thus affords an op-



portunity for accurate diagnosis, for the separation of adhesions, and for the treatment or removal of diseased tissues.

6. Patients prefer it to Alexander's operation with its two external incisions, or to ventral fixation with its abdominal wound. They feel less inconvenience after it, and never see or feel their wound.

7. There is no danger of hernia.

The above-described operation resembles in some respects the operations described by Wertheim a month later than my first operation (*Centralblatt für Gynäkologie*, March 7, 1896), and by Bode (*Centralblatt für Gynäkologie*, March 28, 1896), but is essentially different. Drawing down the peritonæum from behind the pubes into the vagina and stitching it to the fundus is entirely new so far as I know. Stitching the shortened round ligament to a higher place on the uterus is also different from Wertheim's methods of stitching the round ligament to the vaginal edges, or to the bladder at the reflection of the peritonæum, or of taking a reef in the ligament by sewing together a fold of it.

I prefer to combine the suspension over the bladder with shortening of the ligaments, because I do not think that the peritoneal attachment alone should be made to hold the fundus forward, and because the round ligaments alone might not prove sufficient.

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## EDITORIAL.

### HOW SHALL WE TREAT UTERINE PROLAPSE AND RETROVERSION?

The very general exercise of this subject in the medical press, both native and foreign, at the present time, the championship and repudiation of various methods of treatment, the conflicting statistical statements, justify us in believing that the question which forms our editorial text has again come to the forefront of gynaecological interest and that its solution is as far from general acceptance as ever.

It must strike an outsider as strange that, although these pathological conditions, very frequently found associated together, have been recognized, distinctly classified and treated for upward of half a century, in this country at least, have always been and still are the conditions which call upon the specialist most frequently for relief, there is to-day as little consensus of opinion and practice as though the diseases had just been discovered.

A glance at the history of the treatment of prolapse and retroversion, therefore, since gynaecology became a specialty, can not be devoid of interest and may be instructive.

Dr. Emmet was the first to demonstrate clearly by clinical evidence that both these malpositions were merely symptoms caused by widely differing pathological conditions. He further pointed out that they were mechanical difficulties and must be considered and

treated according to well-known mechanical laws. In this connection he was the first to deny that the perinæum was in any way responsible for the support of the uterus or the vagina—a fallacy universally believed up to that time—but taught, on the contrary, that the uterus, like all other organs, was upheld and its position regulated by the concerted action of its several ligaments and the pelvic fascia, which he also showed were mutually interdependent for their integrity of action. It followed logically from this that a given injury or abnormal condition of this fascia or of any one or more of the uterine ligaments would produce, according to the laws of mechanics, a given and to-be-expected effect upon the position of the uterus. For instance, a shortening of the broad ligaments, from any cause, might either draw the uterus up too high in the pelvis or prolapse it or, according to the extent and particular part of the ligaments affected, completely or in part retrovert it; and these several malpositions are irreducible while the shortening of the ligaments remains. But Dr. Emmet further discovered that any malposition of the uterus affected the nutrition of that organ by interference with the blood supply and especially with the outflow of its veins. In a case of procidentia, therefore, the hyperæmia thus maintained would by the force of gravity constantly tend to increase the original malposition.

He found, by many years of clinical experience, that inflammation of the cellular tissue in the folds of the broad and posterior ligaments, as well as that beneath the pelvic fascia between the uterus and vagina, was the most common cause of uterine displacement, through its effect upon the tension of the ligaments and fascia. To that form of inflammation which did not tend to resolve or to form a pelvic abscess, but which remained for a long time obstinate under local treatment with tendency to exacerbations, he gave the term, for want of a better name, *chronic cellulitis*; but this term, he always maintained, did not efficiently express the pathological condition but rather a group of clinical symptoms. His treatment of procidentia and of retroversion were founded upon his interpretation of the cause of these conditions in each case. Where inflammatory shortening of one or more ligaments was the causal disease, he restored by local treatment the proper tension of these supports before he attempted to replace the organ. And, after the cause was removed which produced the ligamentary shortening, he still supported the prolapsed or retroverted uterus by properly adjusted pessaries, until the hyperæmic organ had recovered its normal weight and the ligaments their elasticity and were able to support the organ without assistance. In

the case of the parous woman, he discovered that injuries to the cervix uteri prevented involution and maintained prolapsus, which became still more marked and was combined frequently with retroversion, if laceration of the fascia forming the floor of the pelvis had also taken place in childbed. He invented plastic operations to cure these conditions, with absolutely perfect results when these operations are properly performed. He argued that, if the prolapse and consequent retroversion were due to a want of integrity of the pelvic fascia at the floor of the pelvis, it was here that we should work and not attack the incapacity of the ligaments to fulfill their function, of which these are entirely capable if we restore the power of their working-partner, the pelvic fascia, and thus enable the uterus to return to its normal size, at which only the ligaments were intended to give it support. If, on the other hand, the uterine displacements were due to inflammatory or other shortening of the ligaments, it was unreasonable to expect results from plastic work upon the cervix or vagina, even when these were needed, until the ligaments were restored to health.

We have detailed at some length the teaching of Dr. Emmet in regard to the treatment of uterine prolapse and retroversion, because his teaching, for many years, represented more than that of any other man the standard of gynæcological thought and practice among us and because he is the only specialist who has established a distinct *school* of gynæcology.

His teaching, as a whole, was more or less understood and more or less imperfectly followed by the mass of the profession in this country until Tait discovered pyosalpinx as a cause of pelvic disease and proclaimed it to be the *only* cause; that cellulitis, except that form which immediately resolved, did not exist. He maintained that the symptoms, which Dr. Emmet had grouped clinically under the term *chronic cellulitis* were, in reality, cases of pyosalpinx with its consequent peritonitis. Immediately Germany adopted Tait's idea, though she gives her own leaders the credit for it, and this country soon followed with overwhelming enthusiasm. As Tait was undoubtedly right in that pyosalpinx did form a serious menace to health and life and that it was to be found in a number of cases of pelvic inflammation, where it had never before been suspected, the profession argued that Tait must be right in both contentions and agreed that cellulitis was a myth and that the Tait operation was a panacea for every inflammatory disease of the pelvic organs.

Soon the sexual slaughter of woman became immense and flour-

ished unabated for several years, while Tait soon became out-Taited by his enthusiastic followers. Gradually, however, the latter found that there was something wrong. Most patients undergoing this operation did not become restored to health for months, sometimes several years, after the removal of their ovaries and tubes, and many were made worse by a train of symptoms quite as bad as the original ones. It was also disconcerting when pathologists asserted that a considerable proportion of the appendages submitted to them were entirely free of all organic disease. Moreover, symptoms of prolapse were not relieved but generally increased by the operation. Then it was suggested that if Tait's operation were done in connection with forcible suspension of the uterus by ventrofixation, all would be well. But this has not proved satisfactory. In many cases, although the uterus can be felt drawn far up and held there, months after operation, the patient still continues to complain of the same symptoms which were formerly referable to the prolapse. After a time, it dawned upon gynæcologists, that Tait's operation was suitable only to cases of undoubted pus tubes and that the wholesale spaying of women, which had so long prevailed, was not only not a cure-all but had on the contrary a limited and very uncertain effect upon the symptoms of pelvic disease. Thus Tait, in his turn, began to become discredited and medical popular prejudice veered round to what was called *conservative* surgery upon the appendages. And now men began tentatively to acknowledge again that possibly *cellulitis* might be a factor in diseases of women. Still this tardy reacknowledgment of an isolated fact did not assist the cause of prolapse and retroversion.

Alexander's operation of shortening the round ligaments about this time began to obtain many adherents where for a number of years it had excited little practical attention. But, as an adjuvant to this operation it was soon found necessary to add the use of a pessary, because the round ligaments themselves were not strong enough to uphold the uterus and, where the prolapse was due to puerperal injuries, it was also necessary to add two or three plastic operations. When it became evident that an Alexander needed so much help from other surgical means, which in the hands of others were found amply sufficient to accomplish, by themselves, everything claimed for the Alexander, it still remained a question in the judgment of many whether this operation was not, to say the least, altogether superfluous. At the present writing, a small crusade is being urged especially in Germany against ventro- or vaginal fixation and many evil results



are brought forward as cause for its abolition. Suspension of the uterus instead of fixation is recommended.

With immense and confident enthusiasm, the old operation of curettage and drainage was again brought to the attention of the profession and every possible good result was promised from its use. It appeared resting, as on a pedestal, upon the theory that every form of pelvic inflammation began as an endometritis; in which case, the uterus being the focus and, as it were, stud farm from which new colonies of germs constantly came forth to ravage the peri-uterine tissues, a complete and sweeping attack upon the offending endometrium should, by cutting off the base of supply, very quickly terminate the inflammatory processes with their concomitant uterine displacements. Curettage and drainage, if associated with complete asepsis, has been recognized, from the earliest times, as an excellent adjuvant to the treatment of pelvic inflammation, especially of long standing, but, as a *panacea*, it had only a little day of glory. Many cases which should have been *cured* were found to be only benefited temporarily and then, as a solution of this puzzle, the further theory was advanced that in all such cases the whole uterus had become so rotten that nothing short of hysterectomy could destroy the propagating germs.

Such radical teaching, though a little shocking at first, by constant reiteration was soon listened to with tolerant ears and created rather a contempt for an organ which before had always been treated with decided respect.

It was not long, now, before the profession was prepared for the most brilliantly original procedure for the relief of procidentia and, incidentally, retroversion which probably has ever been suggested for the relief of any symptomatic and functional disease. In this case there could be no question of failure; so simple was the process that it became immediately evident to the dullest mind that the malpositions would disappear at once, never to return.

Observing the many rival camps, each maintaining its own method of dealing with these diseases and each contemning the other's advocacy and lauding its own—viewing this contradiction and disunion we say—it occurred to some unprejudiced abdominal surgeons, who had arrived at the conclusion that there was not much choice among all the methods, that a simple compromise could be adopted by which harmony might be restored and unanimity of treatment prevail. This clever device, though astoundingly original in its application to the scientific treatment of functional diseases, yet had as an

exemplar as old an incident as that of the famous knot which Alexander cut because he could not untie it. The simple rule of conduct proposed was this: If any surgeon thought that *he* could not cure a case of procidentia, let him remove the uterus and its appendages and so put a stop to all further symptoms of any kind connected with those organs. Incidentally, moreover, he prevented the patient from having the procidentia cured by some other surgeon and the case from discrediting himself!

The charming ease and simplicity of this idea appealed at once to many among those gynæcologists who are accustomed in all things to "follow my leader." The presence of a number of respectable names among the advocates of this measure sufficed to stifle any doubts as to its propriety and satisfied at the same time an abiding ambition to be always at the forefront of modern progress.

But there were honest souls simple enough to marvel at the mental attitude which could counsel a radical operation for the relief of functional disease and these refused to subscribe to the argument: If *I* can not cure this case it must be incurable; *I* can not cure this case, *Ergo*: This case is incurable—and I am justified in radical excision. Many men even go so far in reprehending this argument as to declare it palpably illogical in thought and grossly immoral in practice.

There is one other method of treatment, too new yet to have been thoroughly tested, but which if judiciously used and not blindly abused, should be of use in a limited and clearly defined class of cases of retroversion. We refer to colpotomy, anterior and posterior. We believe it can never be self-sufficient, however, but must be considered as a possibly very valuable adjuvant. If the uterus be displaced and held so by old and firm peritoneal adhesions of itself or of its appendages, and there be no inflammatory shortening of the uterine ligaments present, then the direct and forcible breaking up of these adhesions and replacement of the uterus would greatly aid a cure in the matter of *time*. But if inflammatory shortening of the ligaments themselves be present, we can not reasonably expect anything from this operation save an increase of the displacement from manual interference.

This brings the history of the treatment of procidentia and of retroversion up to date. We consider it not only a most instructive object lesson in the study of the scientific mind but of human nature as well. We might pursue the subject further from the standpoint of the long-suffering patient, who for half a century has been subjected to the effect of kaleidoscopic opinions in the treatment of almost the

commonest disease which affects her genital organs. But, though we have not been prolix in what we have said, we have already been carried far beyond the space which we had allotted ourselves for this editorial.

One thing is certain : The profession at large is as much at sea concerning the treatment of uterine displacements as it is possible to be and the divisions and blind gropings after any new promise of success are daily becoming more evident. The abdominal surgeons clearly recognized this condition of things when they were honest enough to propose that last resource—that final acknowledgment of incapacity to cure—*extirpation of the uterus!* But is it to the credit of those who profess to be gynæcological specialists that they should so quickly have “thrown up the sponge” and that, too, at the suggestion of those who have not had that special training in the peculiar conditions of the female pelvic organs which the former profess?

In that which we have just said is implied what, to our mind, is one of the chief causes of division among gynæcologists of the present time. The specialty has permitted itself to be dominated by the distinctively abdominal surgeon who, in most instances, is but the general surgeon in disguise—one who treats the diseases of all organs upon general surgical principles *only* and who has neither the inclination nor the knowledge to recognize the fact that the uterus and other female genitalia, both in the character of their tissues and in their physiological functions, are *sui generis* and need the undivided study of a specialist to do them justice. Moreover, gynæcology is not a *surgical* specialty; it is both medical and surgical. He, therefore, who expects to practice gynæcology on surgical principles only, however much he may endeavor to specialize these, is deceiving himself. He can never understand the diseases of women and his capacity for harm is incalculable. The cleverer and more brilliant he is, merely as a surgeon, the more is he to be deplored.

A favorite weapon among the so-called “modern progressionists” and a most efficient one with which to beat the timid or wavering gynæcologist on to the trail of each new and supposed original idea and method has been the positive assertion that “modern” gynæcological thought and practice were founded upon the unerring dicta of modern pathology. This assertion is both false and ludicrously arrogant. The most positive statements of the most modern pathologists have not proved nor can they disprove anything in regard to practice, where well-matured clinical experience pronounces a contrary judgment. God be merciful to the pathologists, if they may justly

be held accountable for the results of all the gynæcological fads and vagaries which have been so enthusiastically preached and practiced, only to be discarded in turn when the acme of damage had arrived, during the past ten or fifteen years !

Pathologists are not practical gynæcologists. They examine a pathological specimen, it is true, and may correctly state what morbid processes they find therein. But does this, can this, declare the ultimate or proximal cause of the disease or the symptoms of which the morbid specimen may itself have been the cause during the physiological life of that specimen ? As familiar examples of what we mean : Does the declaration of a pathologist that an extirpated uterus really presents the condition which we know as chronic interstitial endometritis give the surgeon a scientific indorsement of its removal ? Does the pathologist dare to say that the endometritis could not have been entirely cured by proper treatment and the uterus saved ? Or does his report in any way indicate whether the endometritis was the cause or the effect of inflammation elsewhere—in the connective tissue of the broad ligaments, for instance ? Is the pathological report of chronic ovaritis any scientific indorsement of the surgeon who removes the ovaries for this cause ? We are not arguing here in regard to the propriety of these operations for these diseases ; we *do* wish to show the absurdity of using pathologists as scapegoats for the rights or wrongs of gynæcological practice. No, the pathologist furnishes us data upon isolated facts ; we must form our *practicæ* upon logical deductions from matured clinical experience. Pathologists can not nor do they pretend to indorse these judgments. *Verbum sapienti !*

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## TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, March 17, 1896.

The *President*, HENRY C. COE, M. D., in the Chair.*Sarcoma of the Vagina and Left Broad Ligament removed by Combined Cœliotomy and Perinæotomy; Freedom from Recurrence over Three Years after.*

Dr. G. M. EDEBOHLS presented a patient whom he had before presented and whose detailed history he had related to the Society on March 21, 1893. On December 16, 1892, he had removed by perinæotomy a small fibrosarcoma of the vagina and left broad ligament, together with a large portion of the vaginal vault. At the same sitting he had then opened the abdomen above the pubis and removed the uterus, both tubes and ovaries, in one piece. The infiltrated left broad ligament was then removed in its entirety clean out to the pelvic walls, leaving only the ureter, which inspection and palpation showed to be free from disease.

The case was of some interest, because—

1. It represented the first perinæotomy for removal of an intra-ligamentous tumor performed in this country.

2. It also represented, as far as he knew, the first systematically planned and executed removal of the entire broad ligament, together with uterus, tubes, and ovaries, in a case of malignant tumor affecting the female genitalia. It is true the left ligament alone was thus entirely removed, clean out to the pelvic walls, but the sarcoma itself was confined to the left side, and the right ligament was in no wise involved. Since the establishment of the principle for himself in 1892, Dr. Edebohls had a number of times practiced removal of the entire broad ligaments on both sides in cases of cancer of the uterus. Within the past two years other writers, especially in France and our own country, had taken up the subject. Dr. John G. Clark (*The Johns Hopkins Hospital Bulletin*, July–August, 1895) had, among the most recent, described a systematic method of removal of the broad ligaments in cases of cancer of the uterus.

3. The patient remained absolutely free from any indication of recurrence, and enjoyed perfect health three years and three months



after removal of such a malignant growth as sarcoma. She might now be considered cured, as sarcomata are notoriously rapid in recurrence. He would ask any of the Fellows, who might feel interested, to examine the patient.

*Cystosarcoma Papillomatosum of the Abdominal Wall.*

Dr. EDEBOHLS related the history of the case. The specimen, a partly cystic and partly solid tumor, five centimetres in diameter, was removed May 8, 1895, from the abdominal wall of a man of thirty-six. The growth had existed for three years, remaining as a small nodule until two months before coming under his observation. During these two months it had enlarged rapidly. The tumor was situated immediately underneath the skin, midway between the umbilicus and the right anterior superior iliac spine. It was removed under cocaine anæsthesia, clear out into the surrounding healthy fat, a piece of the aponeurosis of the external oblique, to which the tumor was slightly attached, being also removed. On section, two thirds of the tumor was found to be cystic—clear yellow serum—and one third solid. From the solid portion papillomatous formations projected into the cavity of the cyst. Dr. F. Schwyzer had made a careful examination of the specimen, and pronounced it a cystosarcoma, the sarcoma being of the mixed, round, and spindle-celled variety.

There was no recurrence to-day, ten months after operation, and the patient was in perfect health.

To judge from the history, the growth had existed as a benign growth for nearly three years before it assumed the character of malignancy.

DISCUSSION.

Dr. A. PALMER DUDLEY said that he had examined the patient presented by Dr. Edebohls, and had found her to be apparently entirely free from any return of the disease.

Dr. E. B. GRAGIN said that he could verify the statement of Dr. Dudley. The patient showed cicatrices of Alexander's operation and of perinæotomy and cœliotomy.

Dr. H. N. VINEBERG said he could corroborate what had been said about the entire freedom in this case from recurrence.

Dr. J. E. JANVRIN said that he had operated upon a sarcoma of the right Fallopian tube about six years ago, but, unfortunately, the patient had died shortly after the operation. Among the various vaginal hysterectomies that he had done, there had been two cases of lymphosarcoma of the uterus. Both of these patients were well now

at the end of two years. He had been greatly pleased to hear Dr. Edebohls say that he had performed, some three years or more ago, total extirpation of the broad ligament in the manner described. He had not been aware of this before. He had been greatly interested in the paper of Dr. John G. Clark, of the Johns Hopkins Hospital, Baltimore, who had given a very full description of the operation in his paper published last August. Dr. Clark had done this operation in three instances for malignant disease, but of course it was too early yet to state the final result.

Dr. Janvrin also further stated that he had removed by laparotomy the uterus and appendages some five years since from a patient in whom the left broad ligament was the seat of beginning carcinoma. The patient lived but a short time.

In another case of carcinomatous development in the left broad ligament he had removed by laparotomy that ligament only, and the patient was now living and in good health four years after the operation.

Dr. W. M. POLK said that the operation to which Dr. Janvrin had alluded was a very complete one. He had had the pleasure of doing it a number of times, and could assert that all that had been claimed for it by Dr. Clark was obtainable. This subject had been brought before the Society about three years ago in connection with a paper by Dr. R. H. Wylie. Dr. Brettauer had opened the discussion on that occasion with the question as to the advisability of returning to the Freund operation. Successful ligation of the uterine artery outside the ureter, with removal of infected glands and tissue from the broad ligaments and pelvic floor, had been reported at that time, which was really the essence of the entire matter. The anterior branch of the internal iliac artery could be very readily ligated without any great amount of disturbance to the circulation of the tissues, upon whose integrity one must rely for the cure of the patient. This had already been done by the speaker. The operation had been certainly very beautifully worked out by Dr. Clark, but a similar line of procedure, starting from ligation of the anterior trunk of the internal iliac, had been carried out by others, and he hoped in the future to be able to call attention to some of the details of this method.

Dr. EDEBOHLS, in closing the discussion, said that he had spoken of the principle involved in the removal of the entire broad ligament in cases of cancer affecting the female genital organs, rather than of a method. Previous deligation or subsequent deligation of the uterine artery was merely a matter of technique, and not the essential

part of the operation he had recorded. In the proceedings of this Society for March 21, 1893, he had described the systematically planned and executed enucleation of the entire left broad ligament, leaving only the ureter. The separation and ligation of the uterine artery had been previously done during the perinæotomy. Regarding the danger mentioned by Dr. Polk of interfering too greatly with the nutrition of the parts by ligating the internal pudic artery, he would say that Kelly, of Baltimore, had ligated both internal iliacs, in one case, at least, of removal of the uterus for carcinoma, and the patient had made a prime recovery. Dr. Kelly attributed her immunity from recurrence of the disease in great part to the fact that he had ligated both internal iliacs, and had thus caused necrosis of some cancerous tissue that might have escaped the knife.

*The Cure of Septic Pelvic Diseases.*

BY F. HENROTIN, M. D., CHICAGO (by invitation).

(See page 711.)

DISCUSSION.

The PRESIDENT, in declaring the paper open for discussion, said that the Society could not sufficiently express its thanks to Dr. Henrotin for coming so far and giving them a paper which was so much in line with their recent discussions.

Dr. JOHN BYRNE said that he only desired to trespass a moment on the time of the Society to state that it had afforded him the greatest pleasure, as well as much instruction, to listen to this admirable paper by their distinguished guest.

Dr. PAUL F. MUNDÉ said that he had felt a refreshing sensation in listening to this plea for conservative pelvic surgery from "the wild and woolly West." Personally, he had not quite yet reached the point of endeavoring to save a pus ovary when he had the ovary within his reach and could remove it; yet this he understood the reader of the paper to say he had done in one instance. This was a step further than even he would go in the matter of conservatism. This conservatism was particularly significant, coming as it did from Dr. Henrotin, who was, he believed, thoroughly in favor of removing the uterus with the appendages in many cases of disease of the appendages. In the past, the speaker said, he supposed he had opened Douglas' pouch in many instances, often, no doubt, unknowingly, owing to the adhesions; certainly he had cured many cases by such

work, and had reported them. He had also been pleased to hear the reader of the paper express his objection to the use of the sharp curette in recent cases of puerperal endometritis, except in those cases in which there was something to remove—some foreign body, such as a piece of placenta or coagulum. To scrape a septic endometrium in the early stages, when there was no putrescence, he believed was objectionable practice, because it only served to open up channels for infection. He had seen puncture of brawny exudates by the exploring needle, incision, and galvano-puncture result in absorption, although the procedure had only been adopted as a means of diagnosis. The paper had been to him a surprise and a revelation, coming from such a source.

Dr. FLORIAN KRUG said that he thought he voiced the sentiment of all present when he thanked Dr. Henrotin for coming from Chicago to present this most interesting paper. The author had said that the surgeon who performed curettage and introduced gauze packing often erroneously believed that he had done his whole duty in the treatment of endometritis. He must himself plead guilty to formerly having done this, and he felt that if he had persisted in the treatment of these cases, he would have permanently cured some of his patients who had had a relapse of endometritis. Regarding the matter of conservatism, not much could be said until the term "conservatism" was clearly defined. In his opinion, the less the terms "conservatism" and "radicalism" were used, the better for all. In every surgical procedure the pendulum tended to swing back and forth, first too much to one side, and then too much to the other. Dr. Henrotin had shown that a great many cases, at the time when abdominal surgery gave such brilliant results, as compared with the old hot-water treatment of "so-called" cellulitis, had been needlessly subjected to cœliotomy; on the other hand, there were cases in which radical surgery was called for, regardless of individual preference for the vaginal or abdominal route. He hoped that no one at present was guilty of puncturing pelvic abscesses by means of the trocar; they should be treated by the knife, just like other abscesses. If good drainage were established, an excellent result would be obtained in a very large proportion of cases, at least for a number of years. It should not be forgotten, however, that in many of these cases an ultimate cure would be effected only by a resort to a more radical operation. In many instances we must be guided by extraneous circumstances. It made a great difference, in selecting the proper procedure in a given case, whether one was on duty as a sur-

geon to a general hospital, where the patients were anxious to get back to their work and to earning a livelihood, or whether one's patients had all the comforts of life, and did not mind the slower methods which perhaps involved the loss of a number of months. Such considerations must certainly influence the surgeon to a greater or less extent. In a general hospital the surgeon often had to adopt more radical methods than he would in his private hospital.

Dr. W. E. FORD, of Utica (present by invitation), said that he had had some accidents occur in attempts at conservative surgery through the vagina. Once the uterine artery had been torn off and free hæmorrhage produced in endeavoring to reach a mass above through the *cul-de-sac*. The hæmorrhage had been tremendous at first, but it had been controlled by clamps and gauze packing. In a very recent case he had made a vaginal opening, and had passed up into the broad ligament and punctured a phlegmon. No pus had been found. A gauze drain had been inserted. Twice before he had seen such large phlegmons disappear, and, while he admitted that it did not seem like good surgery, it had previously given good results. He had noticed that the hysterectomies done abroad were largely for that class of cases in which Dr. Henrotin would probably effect a cure by vaginal incision and drainage. He was sure that he had seen half a bushel of uteri that had been removed in which he had been unable to detect any justifiable disease.

In the country, curettage was being done just now by all sorts of practitioners—particularly the oculists—and much trouble was following this simple procedure, even among very “clean” physicians. He believed that these ill results were chiefly due to the violence of the manipulations employed by these general practitioners. Only last week he had met with a case in which a small uterus had been almost curetted away in these over-zealous efforts. This danger of curettement in the hands of those not especially expert, it seemed to him, had not been sufficiently emphasized. He could not agree with Dr. Henrotin that it was necessary to irrigate the uterus as freely as he had done. Dry sponging of the uterus seemed to him as efficient, and safer than free irrigation. He felt sure that in work about the pelvis, irrigation was a very dangerous procedure. He did not believe that in the future irrigation in the abdominal cavity would be done as much as heretofore. In conclusion, he would say that Dr. Henrotin's work appeared to him to be a distinct advance over the hysterectomies so commonly done abroad for slight disease in the pelvis.



Dr. H. J. BOLDT said that the reader of the paper had drawn a picture of a woman with a large uterus and thickened muscular structure—in other words, of a woman suffering with chronic metritis and chronic endometritis—for which a curetting had been done, and had asked, How was such a woman going to be cured?

Now, there was a decided disturbance in the pelvic circulation in these cases, and we knew that when there was such a disturbance in the circulation in an extremity, the proper treatment for the relief of this condition was massage. Of course all present were familiar with the theory of pelvic massage, but he would express his doubt as to whether they were familiar with the results obtained from massage in that particular class of cases, when the massage and the movements were properly used in the manner explained by him some years ago before this Society. When there was nothing extra-uterine present, and this condition of the uterus existed, nothing would give so much benefit, and so promptly, as pelvic massage properly carried out. He did not mean to say that curettage was not required, for it was; but curettage alone would not effect a cure, neither would an incision through the posterior fornix and drainage, in his opinion.

A properly conducted pelvic massage, in combination with the curettage, would cure nineteen out of twenty of these cases.

In another class of cases in which there were exudates in the pelvis, pus tubes, etc., he was more in doubt as to the proper mode of treatment. Last fall he had been called to see, in consultation, a very aggravated general peritonitis, due to double gonorrhœal pyosalpinx. He opened a retro-uterine tumor and evacuated a large quantity of sero-purulent fluid. He had made a wide incision in the *cul-de-sac*, sufficient for the introduction of four fingers. Each pyosalpinx, after having been clearly felt with the fingers applied directly, had been punctured and washed out with boric-acid solution, and then, passing higher up on the left side, another large abscess had been opened and several ounces of pus evacuated. The uterus itself was firmly bound down, and the solid exudate surrounded the uterus and extended nearly up to the umbilicus. It would have been an exceedingly hazardous procedure to follow out the course of treatment which had been strenuously advocated by him a short time before—*i. e.*, the radical operation for suppurating tubal disease. He had therefore contented himself with thoroughly packing that pelvic cavity. This treatment had been kept up for about three months, and the patient had made an absolutely perfect recovery. Although only one case, it had given him a good deal to think about. He be-

lieved with Dr. Henrotin that many of these cases could be benefited, if not cured, by a conservative form of treatment.

In this instance there was destructive disease of the pelvic organs, peritonitis, and firm fixation of the uterus, and, had the patient's condition been such as to admit of a radical operation, he would have certainly removed the uterus promptly. The case had started in his mind an entirely new line of thought, which might strongly influence his treatment of these cases in the future. The field for the radical operation, he thought, was much more limited than we had been led to suppose by the advocates of this treatment.

Dr. A. PALMER DUDLEY said that he could hardly express his delight at what he had heard to-night. His pleasure was particularly keen because he had himself been a sort of "under dog" in the Society in regard to some of these operative measures. He had believed that a good deal of work was being done that could be performed in a different manner, and which would leave the patient with more of the generative organs intact than by the radical measures more generally advocated. He thought that now we were coming to the middle ground, and that the paper of the evening had pointed out the route. He felt convinced that much could be done in pelvic surgery without ablating the tubes and ovaries. He recalled a case in which he had been compelled to treat a septic uterus, the result of an abortion. The abortion had been produced by instruments, and this had resulted in a large opening through the uterus into the abdominal cavity. With a dull wire curette he had scraped away the placenta, washed out the organ, and packed it with gauze. The patient had made an excellent recovery in about four weeks. As one's experience increased, one could do much more through the vagina than had been at first supposed. Some of the members probably knew that he had removed through the vagina a twenty-five-pound tumor, a multilocular ovarian cyst, the patient being so stout that he had feared to remove it through the abdomen.

Dr. W. M. POLK said that Dr. Henrotin, in presenting the subject of the evening, had very wisely laid stress upon the necessity for very promptly treating these cases. This opened up the question of doing vaginal hysterectomy for puerperal uterine sepsis. Most of the reported cases ignored the line which should be drawn around the puerperal state, and claimed as puerperal, cases treated from four to eight weeks after the birth of the child when the disorder had become a local one. The two classes presented such very different conditions as regarded general infections that they should never be confounded.

The cases in which the disorder had become localized belonged to the class described by Dr. Henrotin, and hence should be treated by the free incision advocated by him in his paper. If the incision were made free, there was no reason why the very best results should not be secured. In the more chronic cases referred to in the paper the conditions were different. Simply because a radical operation might be required later, we should not allow ourselves to be prevented in the first instance from performing vaginal incision, as advocated in the paper. The procedure was not a new one, as had been said, but it had not been very generally adopted, because many had not been convinced that the results were such as to warrant a prompt resort to it in the beginning. These abscesses should be treated just the same as abscesses were in other parts of the body. The patient should be informed that a more radical procedure might possibly be required subsequently. The unsuccessful cases reported in the paper evidently represented those in which, with or without previous incision, the radical operation must be done sooner or later. When we compared this method of treatment with the results obtained some fifteen years ago from simple puncture and drainage—a method that had been abandoned in disgust in favor of the abdominal incision—the results were brilliant. Now, the swinging backward of the pendulum had been made possible by the results of asepsis. Previously the difficulty had been that the abscesses had been treated too timidly, and after this had been infected by our own carelessness. These cases were now brought before us on an entirely new basis. The great point, it seemed to him, in dealing with these abscesses, was free drainage and evacuation. But the reader of the paper had gone further and had spoken of enucleation, and here came the danger. If the patient were placed in the knee-chest position and a speculum inserted to facilitate the introduction of a rectal bougie, this bougie would be found a most important guide in operating. In this process of enucleation one should make the uterus the starting point, for it was one which could be always found and readily handled.

Dr. J. DUNCAN EMMET said that he had been impressed with the general tone of the paper and the discussion, for it certainly showed the swing of the pendulum in another direction. The remarks of several of the speakers indicated that hysterectomy and curettage, after all, were not the only justifiable measures for the relief of pelvic affections. He had been particularly struck with the remarkably logical presentation in the paper of cause and effect. Believing, as Dr. Henrotin did, that when inflammation of the broad ligament

took place, it was due to a direct infection through or by means of the uterus from without, the logic was perfect that we should promptly resort to drainage. But personally he could not feel in this way regarding the pathology of pelvic disease. He could not look upon the uterus as a cesspool from which came all pelvic ills. He had never been able to recognize a simple endometritis. An endometritis from puerperal sepsis or other sepsis by contagion from without he could, of course, recognize. As he differed from Dr. Henrotin and many others regarding the pathology of pelvic disease, he could not accept the treatment suggested in the paper—that of draining the pelvis as soon as there was a rise of temperature. It seemed to him that Dr. Henrotin might justly lay claim to being the first one in this country who had systematized and brought this method of treatment to the notice of the profession.

Dr. W. T. LUSK said he thought that the more one studied this method the more one would become convinced that it was really a new one, that it opened up a new field, and that we were greatly indebted to Dr. Henrotin for bringing it to our attention.

Dr. HENROTIN, in closing the discussion, said that he did not employ irrigation freely in curettage of the uterus, for he knew that most serious results sometimes followed from such practice. He was perfectly willing to go on record as saying that he had never seen a uterus, having once got to the point of complete sclerosis, get well by massage, galvanism, or anything else except by the natural process of atrophy. He had stated in his paper that there were many chronic cases that by ordinary gymnastic treatment and alterative measures would improve, but this was far from being a cure. These cases, he would admit, often improved in general health, and, not being very sick, did not pay much attention to the condition of the uterus.

The method advocated in his paper had been sometimes misunderstood. If the uterus became septic, and these septic conditions passed beyond the uterus, what were we to do? According to the old methods, we let the case go on until the radical operation had to be performed; according to his method, Douglas' *cul-de-sac* was at once opened and the pelvis explored, and then the surgeon was governed by the conditions found. He was referring only to the acute cases in the very beginning. This treatment he felt would save a large army of women from mutilating operations. The treatment was also applicable to exacerbations of old cases—those due, for example, to the escape of pus from the original sac into the surrounding tissues. These cases could often be cured by the treatment advocated; sometimes even the original disease could be cured.

Dr. Ford but reiterated the opinion of any one who had gone around the country and seen the many uteri which have been apparently needlessly removed. In his opinion, vaginal incision would do much good, because it would enable us to discriminate better in the future. Very frequently sepsis began at the ovarian end of the broad ligament, and the ovarian abscess was the first evidence of trouble. If a drop of septic matter fell into the cavity of the uterus, what harm would it do if there was only a little drain there to catch it up? In operating upon acute exacerbations of old troubles, where the organs were probably destroyed, his plan was to open from behind and investigate, and not to start with the preconceived idea that hysterectomy must be done. A healthy tube or ovary could be reached from behind in a very large percentage of cases. Where they could not be brought down in this way, hysterectomy could be done. He had not given up vaginal or abdominal hysterectomy, or any other method by which he might in individual cases effect a cure.

*Cyst of the Anterior Vaginal Wall.*

Dr. H. N. VINEBERG presented such a specimen removed from Mrs. S., thirty years of age, married nine years. She had had three children, the last one four years before. The tumor had the appearance of a large cystocele and was about the size of a large hen's egg. The aspirating needle did not withdraw any fluid, but on withdrawing the needle some thick colloid material escaped. The patient was twelve weeks pregnant. The cyst was removed on June 19, 1895. It required extensive dissection to free it from the anterior vaginal wall. It was attached to the cellular tissue, covering the bladder by a broad, thin pedicle, which was ligated in sections close to the bladder, and the cyst then cut off. There was an extensive raw surface left, and considerable redundancy in the vaginal wall. A portion of each vaginal flap was resected, the area of denudation diminished by a deep continuous catgut suture, and the vaginal flaps brought together by a continuous catgut suture. The wound healed by primary union, and the pregnancy went on uninterruptedly.

Dr. VINEBERG also reported

*A New Method of performing Vaginal Fixation.*

By HIRAM N. VINEBERG, M. D.

(See page 771.)

Official Transactions.

A. M. JACOBUS, *Recording Secretary.*



Stated Meeting, April 7, 1896.

The *President*, H. C. COE, M. D., in the Chair.

*Successful Ovariectomy during Pregnancy.*

THE PRESIDENT presented a mixed dermoid cyst which he had removed three weeks before, mentioning the following facts in connection with the case: Three years before he had attended the patient during her second confinement, which was perfectly normal, except that during the first stage a large cystic ovary could be felt in the *cul-de-sac* of Douglas, which was pushed downward by the advancing head, but slipped up spontaneously and gave rise to no trouble. He was unable to palpate it on examining the patient four and six weeks after delivery, and after discharging her did not see her again until she was quite advanced in her third pregnancy, her health having in the mean time been perfect, with an entire absence of local symptoms. A bimanual examination four weeks ago revealed a doughy tumor the size of the fist impacted behind the cervix and evidently subjected to great pressure. It was quite tender to the touch and could not be pushed out of the pelvis. The patient's only symptoms were backache and obstruction to the passage of fecal matter. The probable diagnosis of impacted dermoid was made, and, after consultation with the family physician, immediate operation was advised, coeliotomy being preferred to vaginal section for the following reasons: Pregnancy at five and a half months, the uterus having risen out of the pelvis, so that considerable downward traction in the cervix would have been necessary in opening the posterior fornix, thus increasing the risk of premature delivery. Profuse hæmorrhage was feared. It was desirable to remove the cyst unruptured, and thus to more certainly eliminate sepsis. The operation was performed April 21st under chloroform and oxygen anæsthesia, and lasted about twenty minutes. It was necessary to push aside the uterus (it extended almost to the umbilicus) and introduce the hand behind it to the bottom of Douglas' pouch, whence the tumor was easily shelled out and removed. It had a long, slender pedicle, and was adherent both to the uterus and to the rectum. Left ovary and tube normal. Careful tier-suture of the abdominal wound.

Convalescence entirely afebrile, the patient being kept under the influence of opium during the first forty-eight hours, not only to pre-

vent uterine disturbance but to relieve the pain, which was unusually severe both in the wound and in the region of the stump, especially during fœtal movements. Pregnancy had proceeded without the least sign of interruption.

The wisdom of prompt interference was apparent, as either premature delivery or labor at term would have been fraught with great danger to the mother and would probably have necessitated the destruction of the child.

The reporter invited criticism on the following points : 1. Whether abdominal was preferable to vaginal section in advanced pregnancy in the case of adherent intrapelvic tumors. 2. Was it his duty to have urged an operation when he first discovered the cystic ovary—*i. e.*, after the former delivery? Of course the most important lesson conveyed was the necessity of examining every woman early in pregnancy, no matter how uneventful may have been her former history.

#### DISCUSSION.

Dr. E. H. GRANDIN : As regards the first point, I think there is a unanimity of opinion that it is not desirable to interfere with these growths when labor is near term unless they are of such a character as to interfere with delivery. If I remember your statement to me at the time, this tumor had risen above the brim. Now, if this had occupied the vagina, in front of the fœtus, the thing to do would have been to remove it. On the second point, having read a good deal in reference to the vaginal and abdominal methods, having heard a good many men talk, having seen a good many men operate, and having operated repeatedly both ways myself, it is very curious to find you to-night showing this specimen as having been removed from above, when, if I remember your statement, it was well down in the pelvis. In other words, we have here the very kind of growth which the advocates of this vaginal route—I am still on the fence myself—would say should be attacked from below. It was intrapelvic and accessible by the vagina. You should not have gone in from above, according to their arguments, because you subjected the woman to more risk, and to the great shock as well as risk of hernia. Now, your statement of the condition when you operated convinces me that you did the proper thing. This growth was intrapelvic, and was firmly adherent not only to the posterior surface of the uterus, but also to the rectum, and had you attacked it by the vagina, which would have been the easiest thing to do, you would have run the risk of injuring the gut, and you would have left a raw surface in the pos

terior uterine wall which might have formed adhesions and might have been infected in various parts. So here we have a case which was accessible by the vagina but preferably removed from above. My limited experience has confirmed me in the statement made here a year ago, that, in view of the fact that where these growths are adherent I never know where the adhesions are, what their nature is, or what is connected with them, I prefer the abdominal route. It is not altogether the fact that I was trained to go in from above, because I have had sufficient experience from below. Where we have simply a collection of pus these things should be evacuated from below, but where you have a thing like this that is firmly wedged down and adherent, since you do not know the nature and character of the adhesions or the organs involved, the wisest thing is to go in above, as you did in this case, notwithstanding the fact that your patient, according to those who speak so loudly for the vaginal method, was subjected to greater risk of hernia and of shock—objections which to my mind would not hold one minute. I do not believe that in the hands of a careful operator the woman is subjected to any more risk in going in from above than from below; I do not believe, if you are clean and do your abdominal work properly, that you will have hernia in many cases, if you know how to suture. In other words, the risk of sepsis is as great from below as from above; the ventral hernia ought not to occur. So here we have an instance where a good many gentlemen who are speaking so loudly for the vaginal route would have gone in from below, and would have been almighty sorry for having done so.

The PRESIDENT: Please remember the point I made. If that patient had been only three months pregnant I would have gone in from below; but she was six months pregnant, and the saving of the child was a very important consideration, as it was an extremely important case in private practice.

Dr. H. T. HANKS: The choice of the route in doing this operation certainly gives great credit to the President, because, as Dr. Grandin has said, the patient is living now, the tumor has been removed, and the convalescence was satisfactory. The very point which Dr. Grandin makes is one which I wish to make in the paper to-night with reference to the removal of these tumors. I do not think we are justified in such a case as this in trying to remove the tumor from Douglas' pouch when the patient is six months *enceinte*. You can have no clear idea of the nature of the tumor, or to what part of the uterus the pedicle is attached. A perfectly movable ovary or a small movable tumor could, perhaps, have been

removed at three or four months safely ; but still if it was a small movable tumor, it would do no harm to remain until after delivery. But this tumor was growing, and would have obstructed normal labor, and I think this is just the class of cases that we want to consider.

Dr. J. RIDDLE GOFFE : I do not know the circumstances of the case except so far as you have intimated that she was about six months pregnant and had this tumor. I feel inclined to agree entirely with the gentlemen who have spoken, that in the case of pregnancy any effort to remove a tumor anywhere near the size of that through Douglas' pouch would jeopardize very much the safety of the foetus. As to the merits of the two routes, I am a firm believer in the vaginal route in appropriate cases, but I think we should hold ourselves open for the choice of whichever route seems to be best adapted to the individual case.

#### *Hysterectomy for Puerperal Sepsis.*

Dr. J. RIDDLE GOFFE, in presenting the specimen, said : I have here the uterus, broad ligaments, ovaries and tubes, adherent vermiform appendix, and section of adherent omentum, all removed *en masse* from a patient yesterday. The case is one of puerperal sepsis that has been subjected to the radical operation of hysterectomy. The patient appeared at my dispensary clinic a week ago to-day, bringing her baby with her. She said the baby was three weeks old, and that she had had some chills and felt badly, having a good deal of pain through her pelvis. Her lips were much parched ; she was very anæmic, with an anxious expression of countenance. Upon examination, I found that the uterus was large and flabby. It was forced over to the left side of the pelvis ; and reaching from the right horn across the right side of the pelvis, and away up out of the true pelvis into the iliac fossa, as high as the anterior spine, was a large mass, quite dense, but movable within very narrow limits. Her temperature was 102°. That afternoon she went to the Polyclinic Hospital. I opened her bowels and got them in as good condition as I could. The temperature was kept down under a brisk cathartic for a day or two, and then began to rise. She had a temperature of 104° at midnight and of 102° in the afternoon. It would vary between those limits back and forth. On Sunday night, at midnight, it was 104°, and was 102° when I operated Monday afternoon. My first idea was to locate pus, if I could, in the pelvis, and attack it through the vagina. But when she was under an anæsthetic and I

could examine her more carefully, I found the mass was quite hard; I found no fluctuating point whatever, and therefore decided to do the operation through the abdominal wall. Upon opening the abdomen, I found that the omentum was adherent to the left horn of the uterus over an area about as large as a silver dollar, and running out on the right side was this large mass, with the Fallopian tube forming its upper margin and the fimbriæ agglutinated to the psoas muscle in the iliac fossa. Running over the top of this was the vermiform appendix, which reached down as low as the bladder on the anterior face of the tumor. I thought first to separate the adhesions between the omentum and the uterus, but, on turning up a very little edge of it, pus oozed out of the tissue beneath, and I made up my mind that I should not proceed in that direction any farther. I ligated the omentum and cut it away, leaving it attached, as you see, at the left horn of the uterus. I then went out on the right side and ligated the vermiform appendix at its origin from the cæcum, leaving the attachment to the tumor, as you see in the specimen. I then enucleated the adhesions between the intestines and these masses as far as possible, and after I had got the tumor so that I could outline it distinctly, I opened the Fallopian tube along its anterior border, packing gauze so as to protect the pelvic cavity, and allowed the pus to escape. Very little came away—not over half an ounce, I should say. I washed it out very thoroughly with bichloride solution, and then with plain hot water, and proceeded to enucleate and remove the mass entire. At the time of operation the temperature was  $102^{\circ}$ ; to-day it has been down to  $101^{\circ}$ , and her pulse has been very good, until this afternoon at one time it was as high as  $138^{\circ}$ , but she is in good condition and doing very nicely. I packed the pelvis full of gauze and passed it down through the vagina, leaving the drainage in that direction, the gauze on the right side reaching up into the iliac fossa and covering the tissue there, from which I had to tear away the masses. The patient had the first chill on March 12th, a week from the date of her confinement. I did not curette this uterus, and it is an example of a uterus that can be thoroughly septic and yet the interior lining be perfectly smooth and free from anything that could be removed by a curette.

#### DISCUSSION.

Dr. GEORGE M. EDEBOHLS : Dr. Goffe mentioned the fact that in manipulating he ruptured the tube and had some loss of pus into the abdominal cavity. That is a very common experience. I had an in-



stance of it very recently, however, the outcome of which rather astonished me. It was a case in which I had noted for two weeks the rapid development of acute bilateral pyosalpinx. I opened the abdomen and found the omentum adherent to a large, thin-walled pyosalpinx on the right side. As soon as I lifted the omentum the same thing happened that happened to Dr. Goffe—the tube ruptured extensively and deluged the small pelvis with something like eight ounces of pus. I sponged out the pus carefully with sterilized cloths, and when I got through removing the pus in this way, instead of flushing the cavity, I simply took more of the gauze wrung out of bichloride solution (1 to 1,000) and with it touched off the pelvic walls and all the pelvic contents. Then the uterus and both tubes and ovaries were removed and the pelvis packed with a little gauze, draining downward to the vagina. Next I made this experiment: I wanted to see whether primary union of that abdominal incision could be obtained in spite of the fact that fifteen to twenty gauze *serviettes* dripping with pus had passed its lips. I spread out the tissues of the abdominal incision from peritonæum to skin, carefully mopped and touched every part with bichloride gauze, united fascia and muscle with a buried running suture of chromicized gut, and closed the skin over them along the whole length of the wound. To my utter astonishment, I got perfect primary union. That is the remarkable part of it, and it seems to me to prove this one thing—that there is a great difference in the virulence of pus even in acute cases of pyosalpinx.

*A Study of the Pathological Conditions of the Pelvic Organs which ought to be attacked from the Vagina.*

BY HORACE TRACY HANKS, M. D.

(See page 706.)

DISCUSSION.

DR. PAUL F. MUNDÉ: I have been well known as an advocate of the vaginal route for the treatment of pelvic disease, especially pelvic inflammation and pelvic abscesses, many years ago by aspiration and later by drainage, which latter was not so much of a mistake, and quite recently by means of larger incisions. I confess that the paper which Dr. Henrotin read here some two or three weeks ago appealed to me very strongly, and struck me as a very forcible, logical, and practical paper. I have since operated on two cases, opening large pelvic abscesses, such as Dr. Hanks mentioned, by a large, free in-

cision in the posterior vaginal vault, evacuating in one case certainly a pint of pus, and in the second case rather less. I was exceedingly pleased with the ease and thoroughness with which this operation was performed; but in the first case the patient, after doing perfectly well for six days, suddenly developed septic symptoms and within another week was dead. I was exceedingly disappointed in the result. I have done it once since, and the patient is doing well. But I confess I do not quite agree with Dr. Hanks on some points. I approve of the vaginal route, whenever it is indicated, to open pus cavities and drain; but as far as removing tubes and ovaries or anything through the vagina is concerned, I am not in favor of it. As I said not long ago, in a discussion before the Academy of Medicine, the vaginal route is like operating by night, and the abdominal like operating by day. By the vaginal route you feel only; you can not see; you guess; you grope; by the abdominal route you see, you feel, you know exactly what you are doing. I shall certainly never remove either a fibroid or an ovarian tumor through the vaginal route, whether larger or smaller. It is easy enough to open Douglas' pouch and remove a small ovarian cyst, but I do not see the advantage of it, as one can never anticipate adhesions or other complications.

Dr. W. GILL WYLIE said: I have stood before the Society many times, when I was in a very small minority, advocating the suprapubic operation, and have learned to do it pretty well long ago. But I can not admit as much as the writer of the paper. Perhaps our experiences have been somewhat different. Nor can I admit that Dr. Jacobs, or any of the operators who have given us their statistics by the vaginal route, have improved at all on the death-rate by the abdominal method, which we have been doing lately and for several years past; that is to say, I do not think, if I take my last three or four hundred cases of operations for pyosalpinx, such as one gets in Bellevue, that my death-rate would be as high as two per cent., and if I would limit it to the last two or three years, hardly one per cent. I have done frequently one hundred without a single death, and that is almost entirely by the abdominal method. I believe that there are hardly any operations where the tubes and ovaries should be removed for pyosalpinx, with adhesions, which would prevent an expert operator from getting an almost perfect result by the abdominal method. I admit there are some conditions of the patient—as where she has been suffering from prolonged sepsis, and some coincident condition of other organs of the body—which would prevent a formidable operation being attempted. And I do believe, and did a long time before

the vaginal route became so popular, that there are certain conditions in which we should resort to opening the vagina to relieve the patient and get her in good condition so as to stand a formidable operation. I have done quite a number of cases of the removal of pus tubes by the vagina, and I can do it, and so far have not lost a case. In one hundred and fifteen vaginal removals of the uterus by the vagina I have only lost one—the nineteenth. But probably three quarters of those cases have been cancerous, where the operation has been done in selected cases. I have been resorting recently to the vaginal operation in certain cases; that is, where the adhesions are low and the vagina is open I do not mind doing the vaginal operation. It is a good one, easily and quickly done and very satisfactory, and I may extend it somewhat. I believe those who have been trained in the vaginal operation, or who have not succeeded in the abdominal, will take the vaginal. I believe that the main question, and the only one to be considered in debating either method, is, which will kill the fewer patients. I am sure that I would rather have ten per cent. of ventral hernias in my cases than to increase my death-rate by one or two per cent. But I think it is wrong to say that there are cases where anything like a complete operation can be done from the vagina that can not be done from above. It can be done. An imperfect operation can in some cases be done by the vagina where some operators could not do it as well from above; but I believe when we become expert we will do no incomplete operations, except where the danger to the patient from shock will make it absolutely necessary. For the past year I do not think I have in but one or two cases even separated the pus tubes from the uterus in extracting them either way, separating the vaginal wall, and tying the uterine and ovarian arteries. I think I can show thirty to forty done since last September, and probably equally divided between the two methods, because I have been doing the vaginal more to see how expert I can become; and, with probably one exception, I can show these specimens where they are intact. I believe it can be done if one will take the time and patience. So far, in all my operations in the pelvis I have never yet, as far as I know, injured the ureter or cut it; but I have had more accidents in thirty to forty cases where I have done this operation by the vagina, so far as the intestine and bladder is concerned, than I ever had in all my other operations—more than fifteen hundred—by the abdominal method. I had one case where I accidentally opened an intestine. I have had four or five where I opened the bladder. I do not believe we are in

a position to lay down a law and decide exactly about this matter. I am satisfied that many of the younger men who are thoroughly trained in surgery—and a surgical training is being pretty generally recognized as a requisite to the gynæcologist, in fact it looks as if the surgeon was going to be the gynæcologist of the future—will do most work by the abdominal method. But simply because one man can do it better by the vaginal than by the abdominal route, I do not see that it is going to become a law to another man to give up the other method. If the abdominal operation is done for pyosalpinx, with the exception of very rare cases, if the uterus is taken out by the abdominal method, you get less laceration of the tissues, you are certain your case of pyosalpinx on the right side is not complicated by an appendicitis which may bleed and give you trouble and bad results, you get your tissues out very much better, and it is a cleaner and better operation if only one operation is to be resorted to. Where there are adhesions and the intestines are involved to any extent, and there is any question of the appendix being involved, I always have done, and will continue to practice, the abdominal operation.

Dr. B. McE. EMMET : I only want to make a few remarks, because my experience in the lower route is small, but the point just touched on by Dr. Wylie must carry great weight—the possibility of intestinal adhesions and such elements, which are massed together and can not be found except by sight, that the exploration from below will not reveal. I had an experience this afternoon where I believed I had to deal with an abscess of the right broad ligament in a case of parturition of two months past. The patient presented a considerable tumefaction in the iliac fossa. She had had chills, alternations from low to high temperature, and all the symptoms of sepsis. I opened the *cul-de-sac* of the vagina and explored up into the broad ligament, but could not reach anything there that would give me any satisfaction. The mass was carried higher and higher by atmospheric pressure. I then went into the peritoneal cavity and explored, and could feel on one side that it was not involved ; tube and ovary sound. On the other side I could feel the ovary, and realized that the seat of trouble was the tube and the upper portion of the broad ligament, but felt that it was so high up in the pelvis that incision would smear the pus over the parts from the brim of the pelvis down. So I decided to open. I did so, and I found within a terrible state of affairs. Though I had found dullness on percussion, it was largely intestinal adhesions which had formed the mass. The tube was involved, but apparently free from pus, and there was a great thickening of all the parts and

vessels about it. The appendix vermiformis was attached to it and drawn over toward the uterus on the posterior face of the broad ligament, so that I had to detach it with considerable labor. I had to take off the appendix and the suspicious tube—tear it off literally. It seemed almost to take a part of the psoas muscle with it. I was also obliged to repair some superficial lesion of the cæcum. So I think, when there is any doubt, we have the option of proceeding by either route, but we must not advocate the lower route too sweepingly and say everybody must go in there and puncture and cut freely, because this would be the death of a patient with these adhesions.\*

Dr. CLEMENT CLEVELAND : I have been giving this matter a great deal of thought lately, and certainly am very much in sympathy with the expression of opinion of Dr. Hanks in favor of the vaginal route. I have not always been so. It is only in the last year that I have taken a different view of the operation by the vagina. I do not feel that all cases should be operated upon in this way by any means. I think there are very many cases where the abdominal route is the better one. But in doing this work by the vagina and gaining more experience, I am coming more and more to believe that the vagina is certainly the route in the large majority of cases. I have been thinking of one or two cases which I have operated upon in the past which would make one hesitate as to the route. Four years ago I had a patient with pus tubes and septic uterus, and I opened the abdomen and found two large pus tubes or ovarian abscesses—I could not make up my mind fully—but found the intestines were so firmly fastened against these masses, and everything was so adherent, that I felt sure that if I attempted to remove the ovaries and tubes I should spill the pus and almost surely tear the intestines. I therefore closed the abdomen and perforated through the vagina. I kept the drainage up for six weeks or more. The patient made a perfect recovery, and to-day is practically well; the uterus is quite movable, she menstruates regularly, she has no pain, and in that case I feel that I did the proper work. But I feel at the same time that if I had that patient now I should adopt the vaginal route, and should remove the uterus by the vagina and evacuate the abscesses. I should not have been able to take away all the sacs of the pus tubes, but I should have

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\* Since this was reported the patient has made a good recovery. The pus which was in the upper part of the broad ligament drained thoroughly to the dressings in the vagina, and the cavity has closed up entirely.



thoroughly drained, and I believe would have saved my patient in that way. Another case I operated on three years ago was a similar one. I opened the abdomen and found two masses on either side, the intestines in this case plastered firmly against the masses, and the adhesions so firm that I knew I should tear them and spill the pus. I closed the abdomen and perforated by the vagina. On the right side I found a hard mass which could not be reached from the vagina. This woman recovered from the operation, but still continued to have pain and intense suffering, so that the last six months she has been bedridden. On the left side, where I had perforated the abscess, it had shrunk down to a little kernel not much larger than a filbert. On the right side was the mass, which continued to give constant pain—that and the uterus. I removed the uterus and the mass from the right side, and she is now entirely relieved of pain. It is a month since the operation, and she feels better than for many years. Here is a case in which, if I had seen it to-day instead of three years ago, I should at once, instead of opening the abdomen, have removed the uterus and drained the pus sac, and removed the mass on the right side. I think, in deciding upon the route which you are to take, you should first decide whether you are to remove the ovaries and tubes. If you think the ovaries and tubes should come out (and I always think the uterus should come too), remove the uterus, ovaries, and tubes by the vagina. Such cases as Dr. Wylie refers to, and Dr. Emmet, and the specimen presented by Dr. Goffe, I think illustrate the necessity for hesitation. I had myself a case of an appendix several inches long filled with pus, carried over and attached to the ovary and a pus tube on the left side, with a pus tube on the right. I opened the abdomen and removed the appendix—did not detach it from the tube on the left side, but removed it from the cæcum, and then removed the ovaries and tubes. I have had in the last few years quite a number of cases that have come to me where I formerly removed the ovaries and pus tubes. The patients still complained of constant pain, and I have removed the uterus with entire relief; and I would say in regard to such cases, if they came to me to-day, I should remove everything by the vagina. I am heartily in sympathy with most of Dr. Hanks' remarks; and with the experience that I am gaining, and with the greater facility I get in operating by the vagina, I am more and more in favor of it. The stand I took two years ago as opposed to the vaginal route, I frankly say I think was due to my inexperience. I had operated much by both methods, but I was more familiar with the abdominal

method, and thought that, for myself, I could do a better operation in that way ; but I am becoming more and more impressed with the importance of the vaginal route. Certainly it is the natural way to drain ; and in most of these cases, before you remove the uterus you can drain the pus and irrigate. I would say by the way that I have been using peroxide of hydrogen a great deal in these cases where pus has collected in the tubes, and advocate its use strongly.

Dr. GOFFE then gave a brief *résumé* of the points of the case in which he presented a specimen to-night, and concluded :

In reference to the discussion as to which route we shall use, there is one point on which we all seem agreed, and that is, that where we have cancer of the cervix uteri there is no choice but the vaginal route. Dr. Cleveland has stated the rule that I have formulated for myself when dealing with the ordinary diseases of the appendages as we find them frequently : If we decide that both appendages are to be sacrificed, the vaginal route is the better, in my opinion, provided we commence by removing the uterus. I have found that where we leave the uterus and simply attempt to remove the diseased appendages on either side, it is a very difficult performance unless the vagina is capacious and the parts are very much relaxed. This winter I removed the appendages on one side from each of two young women, and found it a difficult procedure to get the appendages down so as to complete the ligature with satisfaction. The operation was long and quite tedious, and I decided that hereafter if I am going to attempt to save the appendages of one side I shall do the suprapubic operation, and only in cases where I feel that both appendages are hopelessly diseased, and the uterus is to be sacrificed, shall I resort to the vaginal route.

Dr. E. E. TULL : I feel that perhaps all very bad cases within the pelvis, no matter how many adhesions there are, ought to be removed by the vagina. There was one of my cases where the patient had had peritonitis, had an abscess emptying into the rectum, had been under care for some time, and had not been able to have an operation. She was under the care of Dr. Vanderveer, who said hysterectomy was indicated, but it would kill her. In this case the intestines were attached to the uterus extensively. We dissected off the intestines at every point, removing the uterus. She made a good recovery. She died eight or nine months afterward from acute disease not connected with this trouble. I feel that in large tumors it is a great deal better not to go in from below. I removed by the vagina ten pounds of fibroid from an unmarried woman once. It was a most difficult operation, and at the end

of forty minutes I had accomplished nothing except tying the uterine arteries. The tumor was, most of it, above the pelvis, and it was very difficult, but after a while we got it out. It was probably twelve to fourteen inches long. As to the mortality which has been spoken of, all the mortality I have had has been from accidents in cases which should not have died. Change of dressings has been one of the things Dr. Mundé spoke of, and I think it has been the cause of two deaths. I think change of dressings in the first week is a very serious thing. I leave the dressings in two weeks. It is not possible to reintroduce a dressing without causing very serious trouble. By the very fact of pushing back the gauze you break up the adhesions. The last case died, and I think it was due to too early removal of the dressings. The dressings were pulled out and the omentum came down into the vagina, and the intestine also came down, and on the eighth day I found this omentum prolapsed. I reduced it after consultation and advice, and she died. By accident the dressings had been left in several cases four weeks or more without any harm.

Dr. JOSEPH BRETTAUER: I don't think the Society is so unanimous about removing malignant disease from below, and I am sure if Dr. Polk were here he would back me up in this statement. It is true that as far as immediate results are concerned in malignant disease of the uterus they are excellent. Some figures tell us of one hundred or more cases without a death; but when it comes to permanent results I am rather skeptical about it. At least my own experience has been leading me to doubt the good we can do by vaginal hysterectomy. Sometimes the earliest and easiest cases, which required an operation the duration of which was twenty to twenty-five minutes, have shown a reappearance within six to eight months. That is a cure as far as the operation is concerned, it is true, but its benefit to the patient is doubtful. I have been thinking in the last few months if it would not be better in these cases (I am not speaking of the very advanced cases, but all the cases where the operation is indicated) if we should not open the abdomen and take out as much as we can—take out the broad ligament and its lymphatics. I have not made up my mind to do it in every case yet, but shall report my cases at a time when a conclusion as to result is justified.

Dr. A. F. CURRIER: If one reads Péan's book on *Tumors of the Abdomen* he is inclined to believe that there is no form of pelvic or abdominal tumor which may not be removed by the vagina if one has the requisite skill, but if the skill is to be gained at the expense of a considerable number of human lives it is a question whether, if we

have a safer method of operating, it is justifiable to learn the method by that course. It is very interesting to note that those who first advocated this method of operating have receded somewhat from the extreme views which they first held, for they now admit that there are certain forms of tumor which are best removed by abdominal incision, and that the field or scope of the operation is not as great as was at first asserted. Another point which suggests itself is, May it not be true that incomplete operations, so called, are not, after all, so incomplete in results as they were supposed to be? That is to say, if we can, by opening and draining a pelvic tumor from below, produce an obliteration of the abscess sac, if we can do that with a reasonable degree of safety, is it not better than to attempt either to remove it entirely from below, or even to take it out from above? It seems to me that this is the direction of the best teaching at the present time. There is a class of cases, which is not referred to in Dr. Hanks' classification, which might be regarded as suitable for operation from below—namely, those in which the disease is tuberculous in character. Such cases, in my experience, bear any form of operation very badly. There is another class of cases which should be excluded from that form of operation—the dermoid cysts. Only two days ago I had occasion to remove dermoids from both ovaries, one as large as a child's head and completely enveloped by the omentum. Although taken out without much trouble by abdominal incision, it occurred to me that if I had attempted to remove them by vaginal incision it could not have been done without cutting them up, and by that means infection would probably have taken place.

Dr. HANKS (in closing) said: I have little to say, gentlemen, but to emphasize this: In the first classification I put the pus-tube cases located in the true pelvis, involving the rectum. Those cases Dr. Wylie thinks he would not do in this way, because he has had good results suprapubically. I believe that the vast majority of those who are going to operate in the next ten years are going to do those cases from below, because if the patient is in a very weak condition we can do as much as I did in my case referred to, and as Dr. Cleveland mentioned in some of his cases. You relieve the present symptoms, and in one or two months you can do a greater operation and the patient will live. The majority of surgeons know it is a very difficult thing to do this operation and do it well where you have to enucleate so extensively in Douglas' pouch and the broad ligament in order to remove the tumor and the pus tube. We all know that they are the difficult cases. So far as doing a surgical operation through the ab-

dominal wall is concerned, I believe I have had as good success as any gynæcologist in this city. But I know that those cases are difficult ones, and that my friends find them difficult ; and I find that the best operators everywhere find them difficult. The other divisions in the classifications mentioned I think we will all agree upon : The small movable tumors and small dermoids in the true pelvis should be removed *per vaginam* ; the ruptured tubal pregnancy when the rupture is downward into the broad ligament ; and all unruptured cases and small fibroid tumors and parovarian cysts and cancerous uteri should be removed from below if the surgeon has fitted himself to do such work.

*Saddles and Postures for Women on the Wheel.*

BY R. L. DICKINSON, M. D.

(See page 736.)

DISCUSSION.

Dr. W. M. POLK, being asked to open the discussion, said he thought there were others better able to discuss this than he, and he would give way to them. As far as his observation had extended, it coincided with that of the author's. Regarding the effects of bicycling upon individual cases of pelvic disease, he had nothing to say, but he felt certain that some cases were benefited by it.

Dr. H. G. PIFFARD, invited guest, remarked that he could say little upon the special topic brought forward by Dr. Dickinson. When women began to take up riding the bicycle about three years ago, the first fact which struck him was their remarkable ability in that direction. He was surprised to see how powerfully they could ride. At that time, when the tread was over six inches, among women and men of approximately the same weight and height the former would ride in better form than the latter. They would take the hills better and endured better. The only explanation which then suggested itself to him was the difference in the form of the pelvis of the sexes, it being wider in woman. Quite recently, however, another explanation had suggested itself by the experiments of Dr. Kellogg, of Battle Creek, Mich., by which it appeared that the muscles of women were, pound for pound, stronger than those of men. It was well known that many men, perhaps thousands, could ride a hundred miles a day, day after day, from sun to sun, but there were also a good many women who would do the same, and those whom he had seen accomplish the feat did it without any distress.



Regarding the saddle, he had often been asked by women what saddle to select, and he had answered to choose one just as they would a corset, by trying it on and taking that which fitted best. The saddle which had been erroneously attributed to him as the inventor, he could not ride at all. One of the first saddles in this country, the Kirkpatrick, or Columbia No. 10, was one of the most injurious, in that the pressure rendered the testicles and scrotum bloodless, and gave rise to a sensation of lifelessness some time after dismounting. The French were first to notice that the suspension saddle, of which the Kirkpatrick was the most extreme example, had a depressing effect on the virility, and made attempts to improve bicycle saddles. They brought out a saddle with a short peak, or no peak. The next improvement was the Christy saddle, which Dr. Piffard now rode, although the first model was almost unridable on account of improper pads. He rode it forty miles the first day and thought it was the best saddle he had ever seen; the second day he rode twenty-five miles and became doubtful; after the third day he developed an abscess which lasted six weeks. However, that fault had been remedied. He had seen a modification of the Christy saddle, the Hollenbeck, at the cycle show, consisting in a concavity for the reception of the buttock, which he thought was an improvement. Dr. Dickinson had already mentioned one important fault of many saddles, their tendency to sag and bring pressure upon the perinæum, which was liable to do considerable harm.

The author had said the bicycle was almost a perfect instrument. Potentially it was, but actually it was not for the majority of persons, although, if each buyer would insist upon it, he could obtain a machine which was almost perfectly suited to him individually. For instance, at present there was hardly a wheel sent out in which the handle-bar stem was long enough to enable one to sit up in proper position if he were above the average height. The handle bar was usually too short. As a rule, the best length (handle to handle) was the width of one's shoulders. It went without saying that the bar should be upcurved. This year the fad promised to be wooden handle bar, just as two years ago it was wooden rim in place of steel. Whether the wooden handle bar would survive was something which no one could yet predict.

Regarding tires, makers sought the lightest possible weight for the required strength. In 1895 they reduced the weight of wheels proximately twenty-five to thirty per cent. below that of the previous year, forty per cent. below that of two years previously. In doing this

they diminished the weight of almost every part, although some parts of bicycles had naturally been heavier in proportion than others. Among other things, they reduced the weight and diameter of the tire, making the diameter an inch and five eighths, or even an inch and a half. The objection to the narrow tire, especially for a person weighing over a hundred and sixty pounds, was an important one. If one weighed only a hundred and twenty pounds, the tire need be only moderately blown up, but if he weighed two hundred pounds the tire had to have almost the resiliency of a billiard ball. If now an obstacle, as a railroad track, were struck sidling, the wheel would slip and give the rider a fall. This had happened to him with bad results twice, once a rib being broken. Since then he had retained a tire of an inch and three quarters, which did not require to be blown so hard, and which rode over obstructions more easily than if it were as hard as a billiard ball.

A question which many asked about was the gear. This should be in relation (1) to the rider's strength; (2) to the length of the crank; but the crank, he believed, had a definite relation to the length of the rider's leg. He had found that if one took the tailor's measure from the crotch to the ground in inches and divided it by four and three quarters, it would give about the length of crank adapted to him. His own measure was thirty-three inches and a quarter. The crank best suited to him would be seven inches. The gear had no relation to the length of the legs, but a close one to the strength of the muscles. For one in ordinary health, taking a moderate and regular amount of exercise, multiply the crank length by ten, and it would usually give about the suitable gear. The speaker could ride a gear of seventy inches up a moderate grade without special exertion. For a young and strong person the crank gear could be multiplied by eleven or twelve, but if he were feeble it were better to multiply by nine or nine and a half.

The gears prevailing in 1895 were not as good as that of 1894 and 1893—due to the fact that in the desire to cut down weight a seven-tooth rear sprocket was used instead of an eight-tooth. For smoothness or ease of running he would advise everybody to insist upon an eight-tooth rear sprocket with a front sprocket with as many teeth as was necessary to give the required gear.

Speaking of endurance, Dr. Piffard said there was a young man in Brooklyn who undertook to ride one hundred miles a day for thirty consecutive days, or from Brooklyn to Oakdale and back daily. He completed the task successfully, and, not being satisfied with that, he

rode the distance for thirty more consecutive days. Dr. Piffard went down to see him, expecting to meet a young man of athletic proportions. On the contrary, he saw a young man apparently not out of the common in the way of a bicycle rider. Then, on thinking the matter over and remembering that one's respiratory muscles were constantly in action night and day, he could see no reason why, after a little training, his leg muscles could not be brought into almost constant action without fatigue or strain. He became satisfied that any one in ordinary health could with a reasonable amount of practice come to ride a hundred miles not only for sixty days, but for an indefinite period, taking only the necessary time for eating and sleeping. One riding on a level and good road with an easy running wheel could continue to ride with but little apparent muscular exertion. In fact, the action became almost as automatic as breathing.

Dr. GRAEME M. HAMMOND, invited guest, thought the rapid action of the heart and dyspnœa, attributed by the author to excessive muscular exertion, might very frequently, especially in the beginning, be due to apprehension of falling or of running into passing vehicles. He thought Dr. Piffard's remark about saddles was correct—that no model would suit all riders. Each person should try to get one that would fit him. Most women would be found, after they had ridden a while, sitting in the concave of an arch, the saddle having bagged so that pressure was made unduly upon the perinæum and vulva. As far as he could ascertain, saddles which presented a firm or unyielding top were the best. The Christy saddle, as made to-day, fitted him best. He had been particularly interested in the author's remarks on wrong posture. If any one would take the trouble he would observe that not one woman in ten riding along the boulevard assumed a correct posture. The knees were too high, the saddle too low or back too far, and, consequently, they had to exert more force than was necessary to drive the wheel than they would in the correct posture. They became exhausted, and did not know why. Another of their mistakes was to ride with the pedal directly under the instep instead of under the ball of the foot. This permitted the pressure to be exerted on the downward stroke only, whereas the foot should be made to turn the crank throughout the entire stroke, as could best be done with the rat-trap pedal.

The principal point, Dr. Hammond thought, was to teach women to sit properly on the wheel. How could this be done? Doctors did not see all women riders of the bicycle, for not all of them were invalids; on the contrary, most of them were healthy, and rode for the

pleasure of it. Most of them, therefore, received no other instruction than what came from the bicycle instructor, and their natural delicacy restrained them from saying anything about the saddle chafing, etc. Men talked over such matters, and thus learned the proper position and how to adjust the saddle. It seemed to him that the way to overcome the difficulty was to have women instructors who had themselves learned how to sit on the wheel and to adjust the saddle.

Dr. W. L. SAVAGE thought the great fault with bicycles usually pertained to the saddle, and after considering this matter he had given directions to a mechanical young man, himself a bicycle rider, to make a saddle better adapted for easy and healthful riding.

The first thing to be considered was to place the weight where it should be carried—namely, on the ischial prominences, and thus relieve the pressure on the private organs, and consequent irritation. To do this it was first necessary to get rid of the pommel, and in so doing a certain amount of steadiness was lost and a tendency to slide forward from the saddle created. Both of these were overcome by fitting the saddle to the individual on top and in front, by hollowing out the top to receive the gluteal prominences, and making the seat broader and of unyielding material. The front is then hollowed out to fit the thigh just at the gluteal fold, and a very short nose in place of the pommel. The sample thus made has been tried by several experienced riders and pronounced right. This saddle will, I think, be ready for the spring trade, and known as the *Just* bicycle seat.

One trouble with prescribing bicycle exercise was the danger of over-indulgence.

Dr. A. M. JACOBUS said his experience had been limited compared with Dr. Piffard's, but as far as it extended it had been similar, and he had reached the same conclusions, though in a less scientific way with regard to diameter of tires, gear (length of pedal crank), etc. It was a great mistake to have the tires small, especially for delicate or heavy people (or for rough, muddy, or sandy roads). A small tire had to be blown very tight (to prevent the rim cutting it), and so one might as well ride a solid tire with an extreme spring saddle. The spring saddle, however, was objectionable, because it changed its height with every jolt, and thus constantly varied the pedal reach and security of foothold. It was best (for resiliency and comfort) to have a tire, varying in size from one and five eighths to two inches, according to the height of the rider, and the surface conditions of the roads or streets. The one-and-a-half-inch tires of 1895 were too

small for pleasure riding, or anything but race tracks, or continuous asphalted streets, but the one-and-five-eighths for people under one hundred and fifty pounds, and the one-and-three-quarter-inch tires for people above that weight, made a good, comfortable resilient riding tire. As to saddles, any one who had served in the mounted service of the militia or army must know that the old McClellan saddle, although as hard as a wood and leather-covered saddle should be, was the most comfortable one for all-day riding, providing it was of the proper size and fitted the buttocks. So with regard to the bicycle, it was not a question of an air-cushion, or using a hammock-spring saddle, but rather of having a large, firm well-fitting one. He rode the saddle. A perfect bicycle saddle for either sex was still a desideratum, though the trade had made efforts at least to fill the need. A saddle for the drop frame, or woman's wheel, should be short and round at the pommel (front part), so that a woman can mount or dismount without catching her clothes, or the coccyx, when backing up into the saddle, or when hurriedly alighting to avoid some impending accident. Cases have been reported of injuries to the coccyx while dismounting by striking on the long-nosed saddle chiefly in use, and which also was probably set too far forward.

All saddles should be slightly concave *laterally* and broad enough to extend *beyond* the tuber ischii, and not only give a bearing to the latter, but to the surrounding soft parts, excepting, of course, the central region about the vulva and perinæum in the female, and the scrotum and urethra in the male, where there should be complete absence of pressure. The rear part or cantle of the saddle should also be made of wood or heavy metal, so that the outside of the saddle can not bend down and leave a central ridge to sit upon, and thus crowd the soft parts up between the tuber ischii to their injury.

Most makers were now affixing a set screw to the saddle brace, so that the slack occurring in the leather could be taken up. This was desirable in leather saddles, otherwise the scrotum or vulva, as the case might be, would be compressed or pinched by the sagging down or hammocklike condition resulting after use. A firm in this city was now making a leather- and felt-covered aluminum saddle to order, from impressions taken in artists' clay placed on a saddle frame on the rider's wheel, set up in a frame, and run while the rider sat in the usual position and costume. This, it would seem, ought to give a satisfactory and comfortable well-fitting saddle.

Dr. MALCOLM MCLEAN thought we ought here to give a definite statement as to whether riding the bicycle was doing special harm or



good to women. The question was being asked a great deal, and he had been told within a week that there were a large number of physicians—prominent ones, too—who were ready to condemn the wheel because of the evil it was doing women. A very intelligent person had quoted a physician to the effect that he could bring together twenty or thirty prominent gynæcologists of New York to prove that bicycling was harming women. Dr. McLean's reply was that he did not believe there were a dozen gynæcologists in the entire country who were at all acquainted with bicycling who would condemn it. Some lacking in experience might oppose it from theory, or they might condemn its extraordinary abuse but not its legitimate use. Dr. McLean had been one of the first riders in the city, had continued it since, and had recommended it to his family, patients, and friends, and was convinced that there was no other exercise more beneficial.

Dr. H. T. HANKS wished to emphasize the importance of being *well* taught how to ride. This past summer his house overlooked a circular walk and drive connected with a summer hotel, and he saw on this promenade as many as four serious accidents to women who were injured by trying to ride the wheel without a teacher. Women should be directed to a capable teacher before trying to ride alone in rink or venture in the public street.

Dr. MARY T. BISSELL knew of only one case where permanent harm had come from the bicycle. A young girl had seriously increased a condition of retroversion of the uterus by over-exercise in learning to mount the wheel. Her observation had been that bicycle riding among mature women was most favorable for the general health. Its great advantage lay in the fact that it took them out of doors for exercise. She did not think it was a developing exercise for young people, and this fact should be borne in mind by physicians and parents.

Official Transactions.

ARTHUR M. JACOBUS,  
*Recording Secretary,*

## TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, April 2, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.*The Ultimate Results in a Case of Bleeding Fibroid treated by Electricity.*

Dr. G. BETTON MASSEY : I wish to place on record a case \* treated by me in 1888, from whom I have received no reliable information as to the ultimate result until within the past week. The case was that of a lady of forty-eight years of age, the wife of a physician in a neighboring State, who was referred to me by the late Dr. Goodell. A large fibroid tumor, fully the size of a large adult head, filled the abdomen, the main complaint being from hæmorrhage. She had had several alarming hæmorrhages, and was very much concerned as to the risk she ran from this source.

The tumor was intramural and entirely situated on one side (the left side), causing a peculiar expansion of the uterine cavity on the right, an expansion that was fully the size of the hand above an undilated cervix, the tumor itself being quite ball-like in character and smooth and monocentric in development. The thinness of the opposite wall of the uterus made it a difficult case to treat by the methods of electrolysis. The opposite uterine wall was surely not more than an eighth of an inch to a quarter of an inch in thickness. On the other side was the large ball-like mass.

The case was placed under the Apostoli treatment with a carbon positive intra-uterine electrode, and with an average current strength of 200 to 250 milliamperes. I now regard this as quite a strong current. On account of the repeated threatenings of hæmorrhage the treatment was very rapid also, most of the applications being made every other day. As a result there was first an aggravation of the flow, and subsequently a partial cessation, with continued dribbling. The form of electrode used in the case was somewhat imperfect, as this was early in the history of the electrical treatment of fibroids, being simply an arc-light carbon of smaller size than those used in

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\* Partially reported as No. 13, *Annals of Gynecology*, July, 1891.

street lamps, insulated up to near the end, leaving a bare surface of about three quarters of an inch. On account of the clumsiness of the shank of such an electrode it was impossible to carry it to all portions of the uterine cavity, which would have been the classical method in such cases, and as a result most of the treatment was applied nearly in one spot, possibly over an area of two inches by two inches. At the end of five weeks there was very great amelioration of the hæmorrhage; in fact, there had been no true hæmorrhages; a period had come and gone without serious aggravation of the flow, and the patient left for her home somewhat earlier than I had planned, with, however, still a dribbling sanguineous flow.

The subsequent history was peculiar. A portion of the tumor sloughed, and, on account of the narrowness of the uterine orifice, there was some rise of temperature lasting fully a month, but there were no more hæmorrhages. The recent advices received state that the tumor has entirely disappeared, thus making the eighth case in my experience where fibroid tumors have disappeared. Of course we have to take into consideration the result of the menopause, which had surely arrived in her case. The commentary on the case that suggests itself to me is that this ultimately excellent result, attained after unnecessarily unpleasant details, is an illustration of the early steps in electrical treatment, where exceedingly strong currents applied in one spot were thought to be essential and proper under the theory that a destruction of tissue was a necessary part of the method.

More recent experience has convinced me that destructive electrolysis is not essential in the treatment of the majority of fibroids; that what we want is an electrical stimulation of the deterrent processes which govern these growths. The latest theory of the causation of fibroid tumors that commends itself to us (in the absence of exact knowledge) points to their being of embryonic nature, embryonic tissues which have taken upon themselves a growth which no longer remains checked by the trophic influences of the surrounding tissues, and it has occurred to me that possibly the true explanation of the action of electricity in most of the other cases in which I have reported a large diminution or total disappearance under currents inadequate to their destruction has been an arousing of the lost physiological resistance of the surrounding nerves and tissues, an arousing of the trophic influence which kept these embryonic cells at rest until the appearance of the exciting causes for tumor growth.

While this case is reported as a successful instance of the cure of alarming hæmorrhages and disappearance of the tumor, I do not re-

gard it as a typical way of treating these cases, as in at least one other tumor, equally large, the cure was accomplished by gradual absorption without any such destructive treatment. The typical electrical method in these tumors is one which rouses the natural forces of the body to control tissue growth which has got beyond control of the unassisted forces.

#### DISCUSSION.

Dr. E. E. MONTGOMERY : I would like to ask those present whether they have had any experience in the development of epithelioma in uteri which have been subjected to treatment by electricity, whether continued irritation of the mucous membrane has not resulted in this condition ? I myself have seen two cases in which the entire mucous membrane of the organ had become the seat of epitheliomatous disease following electrical treatment.

This may be a mere coincidence, which would have resulted anyhow. However, I think we can readily understand that epithelioma arises as the result of irritation, and that the irritation of electricity might cause it.

Dr. C. P. NOBLE : It would seem that the cure of this case was really accidental, that it was not the electricity *per se*, but merely the fact that necrosis of the capsule of the tumor took place, and that then the tumor sloughed away, and the patient in that manner became cured. In other words, the effect of the electricity was merely to cause necrosis of the capsule of the tumor. We are all of us familiar with the cure of fibroids by this process. We have all seen cases of sloughing fibroid resulting in the cure of the patient. We are all, also, familiar with the old method of treatment by large doses of ergot, as advocated by the elder Byford, and we know how sick these patients are while going through the process. While we recognize the possibility of cure of a fibroid by making it slough away, few would care to make a fibroid slough for the purpose of removing it from a patient's body when it can be so much more safely, quickly, and comfortably removed by surgical methods.

Dr. G. BETTON MASSEY : Dr. Noble's comment is partly answered in the report itself, where I did not claim the sloughing as the best action of electricity, although it undoubtedly assisted in this case. This is the only case in my experience in which the tumor has sloughed off at any portion of the treatment, either during or after, except one other case which has been reported, where sloughing was intentionally brought about by intensely strong currents, and the pa-

tient was also cured of the tumor. In that case, a fibrocyst of equal size projecting through the dilated os, I was able to put both poles in the tumor and destroy it piecemeal. In both cases the patients have this advantage over those in whom the operations alluded to by Dr. Noble have been performed—that they are to-day in possession of all their organs. They are both well, have their ovaries, and even have an entire uterus, and of course have had no traumatism of abdomen or abdominal wall. Neither case is reported as a typical method, though at times advisable, and I may add that abdominal section would have been the only other possible method in the cases alluded to to-night, for it would have been absolutely impossible to have enucleated either tumor intra-uterine without causing the death of the patient. Of that I am convinced. Abdominal section would have been easy enough in the one reported, and she came to Philadelphia for that purpose, but was placed in my hands.

Now as to the effect of electricity in producing cancerous degeneration of the uterine cavity or any other portion of the body. I think that Dr. Montgomery ought to put his own cases on record, and also give us a statement of the nature of the electrical treatment. I am quite sure that electrical treatment properly applied is not an irritant to these cavities. I have so frequently seen sadly inflamed cavities, and for that matter ulcers upon the outside of the body, hæmorrhagic ulcers, and painful ulcers, allayed and hastened in their recovery by direct application by the positive pole, that I fail to see how it can be called an irritant unless improperly used.

My own experience of the treatment of these cases contains no instance where to my knowledge any cancerous degeneration occurred subsequent to treatment. I had two cases, however, where diagnosis was doubtful at the time of treatment. They were placed under electrical treatment to get the benefit of the doubt. They were both cases which were cancerous in the fundus, the one clearly cancerous in all clinical characteristics when she came under my care, and both presenting the characteristic shooting pains and offensive discharge; in one case there was a small tumor incapable of being clearly made out, and in the other a large tumor of sharply nodulated character pointing up into the abdomen and giving rise to ascites. Both of these cases were for a while under electrical treatment, and both ultimately, some years afterward, succumbed to the nature of their disease.

Where we have localized cancerous disease in an accessible situation, on the contrary, I am quite sure that the electrical treatment,



particularly the zinc amalgam cataphoresis method, would be the best, on account of the results I have had in several cases where patients have been cured completely of cancer by that means.

Cancers on the outside of the body are easily accessible to this means of treatment.

Official Transactions.

FRANK W. TALLEY, *Secretary*.

## TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

Stated Meeting, April 17, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

### EXHIBITION OF SPECIMENS.

#### *Carcinoma of the Pylorus.*

DR. CHRISTIAN FENGER: Mrs. H., forty-nine years of age, came under my observation in April, 1896. The patient's father and mother both died of consumption. She is married and has had seven children, five of whom are dead. She had the ordinary diseases of childhood, but was otherwise well until two years ago, when she began to have frequent attacks of vomiting, together with pain in the epigastrium. The vomited matter never contained blood or coffee-ground material. In order to keep reasonably comfortable she uses the stomach tube once or twice a day. She has lost in weight and is much emaciated. She is not pale nor is she apparently cachectic. The abdomen is concave and the wall is in contact with the anterior wall of the vertebral column, the contour of which and the pulsations of the aorta are plainly visible. Immediately above the umbilicus can be seen a small tumor which is movable on respiration. The tumor is apparently the size of a large walnut, is hard, and can be moved in both a horizontal and a vertical direction.

I was uncertain whether the patient had a carcinoma or a benignant stenosis of the pylorus, but advised operation.

Accordingly, on April 15th, after the usual preparations, I operated at the Norwegian Hospital in the following manner: The abdomen was opened from the xiphoid appendix to the umbilicus, and I found

a rather small, movable carcinoma of the pylorus with a small subserous nodule on its anterior surface, and a few lymph glands from the size of a pea to that of a hazelnut at the attachment of the upper and lower ligaments. These lymph glands were removed with the carcinoma. The gastro-hepatic and gastro-colic ligaments were divided in portions between ligatures, and finally the pylorus was so freed that it could be almost brought out of the abdominal wound.

The abdomen was packed with sponges and the duodenum constricted by a strip of gauze tied around it an inch and a half below the pylorus. It was impossible to tie lower down, as the head of the pancreas was an inch and a half below the pylorus. The stomach on the cardiac side of the tumor was closed by digital compression. The ventricle of the stomach was now grasped by two large forceps close to the carcinoma, and the stomach divided between the forceps and the fingers. The opening in the stomach was immediately closed, according to the advice of Kocher, with a continuous suture—that is, a portion was cut off and the suture passed, then another portion cut off, and the stomach closed in the same manner until the amputation was complete.

This continuous suture was then buried and inverted by means of a continuous sero-muscular suture, and finally strengthening sutures were inserted here and there for the further inversion of suspicious gaping places.

The duodenum was now grasped by forceps and cut off. After removal of the tumor and the gauze constriction around the duodenum a large Murphy button was inserted in the end of the duodenum and in the posterior wall of the stomach about three quarters of an inch behind the line of the amputation.

The territory of the operation on the stomach and duodenum was disinfected with 1-to-1,000 sublimate solution, the sponges removed from the abdomen, and the abdominal wound closed without drainage. The operation required two hours. At the beginning of the last half hour, just after the extirpation of the carcinoma, the patient's pulse became weak and frequent. This made me abandon my original intention of uniting the stomach and duodenum by sutures, which I prefer to the use of the Murphy button.

The specimen here presented shows the duodenal portion, which is five centimetres long and has a diameter at the duodenal end of three centimetres, and higher up toward the stomach of four and five centimetres, with a respective circumference at these points of ten, thirteen, and sixteen centimetres. The muscularis on the cardiac

side is considerably thickened, two to three millimetres in thickness. The outer wall of the pylorus is smooth, with the exception of a small subserous nodule three millimetres in diameter. The lumen of the pylorus is filled with a whitish nodular mass clad with unbroken mucosa. It is located chiefly on the lower border and anterior and posterior walls, but toward the duodenum entirely encircles the pylorus and fills up its lumen, so as to reduce the opening from the stomach into the duodenum to a small round opening three millimetres in diameter.

The day after the operation the patient's temperature rose to  $101^{\circ}$ , but the day following, the pulse and temperature were normal and there was no vomiting.

#### *Double Extra-uterine Pregnancy.*

Dr. H. B. STEHMAN: It seemed to me that since the subject for discussion to-night was extra-uterine pregnancy, it would be most fitting for me to exhibit these specimens, which I removed from a patient about one year ago.

After a somewhat extensive search through the literature of the subject, I have been unable to find very many cases of double extra-uterine pregnancy.

There are a number of cases of extra-uterine and intra-uterine fœtation reported in the same subject, with repetition of the former in the same patient, and also twin, tubal, or abdominal pregnancies; but cases in which a fœtus is found in each tube, whether ruptured or otherwise, are still comparatively rare. The time during which an interrupted ectopic pregnancy may exist varies.

MURFEE (*Trans. Med. Soc. Tenn.*, 1886, pp. 85-92) reports a case of abdominal pregnancy said to be of fifty-five years' standing.

GALOBIN (*Med. Week*, vol. iv, No. 8, p. 89) operated upon a case of twenty years' standing.

FALES (*Boston Med. and Surg. Jour.*) mentions a case of thirty years' standing becoming a lithopædion.

GATES (*Med. and Surg. Reporter*, 1887, lvii, p. 569) describes a case of nine years' standing in which the fœtal bones were expelled through the rectum.

ETHERIDGE operated upon a case in which the fœtal bones were expelled through the bladder, which was of five years' standing.

According to the history of my case, it would seem that the first pregnancy occurred nearly five years previous to operation, the fœtus being in a state of mummification.

BYFORD, HENRY T. (*Am. Jour. of Obst.*, New York, 1893, xxviii, p. 269) reports two fœtuses removed from the peritoneal cavity at one operation.

JOHNSON, F. W. (*Boston Med. and Surg. Jour.*, 1894, cxxx, 256-259) details a case of pregnancy in both tubes at the same time.

BLOOM (*Philadelphia Polyclinic*, 1894, iii, 292) a case of double extra-uterine pregnancy.

In addition to these, Dr. M. L. Honis called my attention to the fact that MACKENRODT (*Zeitsch. für Geb. und Gynäkol.*, 1892, Bd. xxiii, S. 301), COE (*New York Med. Rec.*, May 27, 1893, p. 667), WALTERS (*London Lancet*, August 6, 1892, p. 329), and SIEGENBECK VON HENKETON (*Centralbl. f. Gyn.*, 1887, f. 3, S. 44) each report cases, and Walters also mentions cases by Rowan, Doran, and Savage.

A brief history of my case is as follows :

Mrs. McK., aged thirty-nine, married ten years. States that she was never pregnant to her knowledge, and that the only illness which she remembers ever having had was peritonitis five years ago.

The first symptom which attracted her attention was suppression of menstruation in October, 1889, which continued until January, 1890. During this time she was confined to bed suffering with abdominal tenderness and repeated attacks of cramps, but no hæmorrhage. The diagnosis was abscess of the left side with peritonitis.

It is evident, therefore, that impregnation occurred at this time, and that the detached fœtus is a product of that date.

She further states that her health was considerably impaired after this first attack.

In January, 1894, she menstruated the last time previous to her second attack of peritonitis.

Menstruation was absent in February and March. On April 1st she began to have severe uterine pain, which was followed by a considerable hæmorrhage, and persisted for nearly six weeks. The pain and tenderness were more especially confined to the right side, in contrast with that in the left in the previous attack of pelvic peritonitis. The history of repeated discharges of deciduous membrane is quite clear ; in fact, all the symptoms correspond to a classical description of a case of repeated extra-uterine fœtation with rupture.

There is nothing special to report about the operation except, as might be expected, the hæmorrhage was somewhat troublesome and persisted for some time after operation, but it was managed with a gauze tampon surrounding a glass drain, through which the blood was aspirated.

Convalescence after the first forty-eight hours was rapid and uneventful.

The large mass containing the foetus *in situ* is the recent specimen removed from the right side.

*Anterior Suspension of the Uterus and Shortening of the Round Ligaments by Vaginal Section.*

BY HENRY T. BYFORD, M. D.

(See page 774.)

DISCUSSION.

Dr. J. M. BALDY, of Philadelphia (present by invitation): The operation proposed by Dr. Byford is not dissimilar from the vaginal fixation operation employed in Europe. The operations for anterior fixation of the uterus are not important merely from the standpoint of correction of the retrodisplacement, and it behooves us to look beyond the mere accomplishment of the replacement. It is a fact that displacement *per se* does not give much trouble in the majority of cases. It is the complications accompanying displacements—inflammatory conditions, etc. Is the replacement of a uterus by a mechanical device or operation in a position which is not normal a good thing? It is a well-demonstrated fact that dystociæ are frequent after such operations, and, if I rightly remember, many such cases are recorded. As a result of these operations we are frequently called upon to do version, and in several instances Cæsarean section has had to be performed. The percentage of cases in which such complications subsequently arise is evidently very large, for a great many cases are on record. It seems to me that all of these operations may be found to be inadvisable. I take it, it may be found far better in the few cases really necessitating the operation at all to render the patient sterile before making the fixation.

Dr. C. S. BACON: The operation described this evening is supposed to be better than the fixation of the uterus to the vagina, because the serous coat of the bladder will rise with the growth of the pregnant uterus and thus allow the development of the anterior uterine wall. Wertheim's operation for retrodisplacement and prolapse has, I believe, a better future than the operation described by Dr. Byford. Wertheim's operation consists in putting sutures around the round ligaments about one centimetre from the uterus and fastening them to the peritonæum or to the vagina. It has the advan-



tage over the other operations that by it the growth of the anterior wall of the uterus is not at all restricted in pregnancy.

Dr. Byford has been working in the same line as several others, and it will be difficult for him to establish any claim to priority. His operation has two features—vesical fixation of the uterus and shortening of the round ligaments by vaginal section. The first part of the operation has been done by Mackenrodt, and the latter by Wertheim and Bode.

Dr. BYFORD: In order to justify this operation, I must, of course, assume that operations for retroversion are sometimes justifiable. Dr. Baldy has not quite comprehended the nature of the method of operation I proposed. The uterus is neither fixed to the abdominal walls nor to the vagina, and the remarks upon dystocia are not applicable to this method, as they are to ventral or vaginal fixation. My operation calls for as much suturing as is necessary to provide against failure, and no more. Neither shortening the round ligaments intraperitoneally, without including means to prevent the intestines getting between the fundus uteri and the bladder, nor mere suture to the bladder, is sufficient to insure permanent success. Wertheim's methods are not sufficient except when they employ the vagina as a point of support, and I believe that he expressed the fear himself that suture of the round ligaments to the bladder peritonæum might prove ineffectual. I would like again to emphasize the fact that the bladder regains both its uterine and vaginal attachments, that the uterus is in its normal position against the bladder, and that it changes its location with the filling and emptying of the bladder.

*Ætiology and Pathology of Extra-uterine Pregnancy.*

BY WILLIAM H. RUMPF, M. D.

(See page 755.)

*Diagnosis of Ectopic Gestation.*

BY C. S. BACON, M. D.

(See page 762.)

*The Treatment of Ectopic Gestation by Abdominal Section.*

BY C. N. SMITH, M. D., TOLLEDO, OHIO (by invitation).

(See page 747.)

Official Transactions.

T. J. WATKINS, *Editor of Society.*

## CORRESPONDENCE.

## "SPECIALTIES AND THE GENERAL PRACTITIONER."

TORONTO, May 29, 1896.

*To the Editor of the American Gynecological and Obstetrical Journal :*

SIR : Referring to your editorial in the April number and to a letter in the May number on the "Specialties and the General Practitioner," the question of the relation of the specialist to the general practitioner is one of great importance and worthy of extensive discussion at the present time, when specialism in every department of the science of medicine is clamoring for its recognition and general acceptance by the profession at large.

It seems to me that one of two things must take place : either that the general practice of medicine must cease to exist and all general practitioners become specialists or act as agents or advisers as to which class of specialism they should refer the cases coming to them for advice, or that the specialist resume the true rôle, as I take it, of consultant in his own branch of the science, and act in conjunction with his *confrère* the general practitioner.

It is simply absurd for the specialist in any branch of medicine crying out that the general practitioner is encroaching upon his field of labor ; rather should it not be the reverse if any crying out should be done ?

Let the specialist be a consultant as his extended knowledge in any special class of disease will warrant, and as his successes are emblazoned on his armor of professional reputation and are seen by his *confrères* in the practice of medicine and are recognized by them ; then, when through seriousness of ailment or lack of experience in the special class to which the ailment belongs, the general practitioner will seek his brother specialist, in order that together, hand in hand, they may be able to combat disease and restore to health, if possible, the case under their care.

Dr. Carstens, in his letter to this JOURNAL in the May issue, says : "If the general practitioner would think for a moment, he would readily see that it does not pay for him to *meddle* with even simple cases, for they will pay him only a very small fee, etc." In the first place, what right has he, however eminent he may be in his special work, to cast reflections upon his fellow-practitioners, and to infer that what

may be done in a simple case, mark you, is meddling? Truly this is presumption, to say the least. And in the second place—which, judging from the tenor of many so-called specialists, should be first—"will pay him only a very small fee." Is this the ultimate end of our noble profession? True, the laborer is worthy of his hire, and should be recompensed; but is not the welfare of the patient under our care our first charge? And in a simple case—one which the general practitioner is just as competent to handle as any specialist—would it not be simply a breach of trust to hand it over simply in order that another may overcharge for the same thing which any ordinary reliable practitioner may be able to do?

"The easy cases he does not get." Why should any one expect to get referred to him cases within the scope of every practitioner? It is just what any one deeply interested in true science is happy not to get, but, with the keen appreciation of the knights of old, he rejoices in having foemen worthy of his steel.

The trouble seems more between the true specialists, men of ripe experience, and the so-called, or spurious specialists—specialists in name only. The latter, it seems to me, are causing inroads upon the field of true specialism. It is the spurious specialism, with its ever-increasing devotees, many of whom are mere striplings, without the experience of the average general practitioner even, in their own field of work; they are the enthusiasts, attaching all manner of importance to minor ailments. It is they who become one-sided and in some cases accept diagnoses without confirmation, and are willing to operate or treat cases without looking beyond local manifestations.

In conclusion, as a general practitioner—one who has the ultimate good of his patients in view and who intends to go on treating and studying the various classes of disease, whether gynæcological, nervous, stomachic, or respiratory, as the case may be, but as one who does not hesitate to seek the aid of specialists when occasion arises, in order to confirm diagnosis or seek assistance in obscure and difficult cases—it seems to me that the sooner the specialist comes into harmony with the general practitioner, and recognizes that his true rôle is that of consultant, the sooner will this present knotty question be settled. A little less selfishness on both sides will work toward the ultimate good of all.

D. ALBERT ROSE, M. D., C. M.

50 AVENUE ROAD.

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"SPECIALTIES AND THE GENERAL PRACTITIONER"

358 WEBSTER AVENUE, CHICAGO, May 9, 1896.

*To the Editor of the American Gynecological and Obstetrical Journal:*

SIR: If, in the original scope of your JOURNAL, it was the intention to afford a little space occasionally to the general practitioner, permit me to give expression to a few thoughts suggested by the editorial entitled "Specialties and the General Practitioner" in the April issue.

The gynæcological field, I will admit, is one into which the general practitioner is tempted to stray, but that it is invaded to the extent your article would lead the reader to believe I am in doubt. However much the average physician may wish to establish himself in the domain of surgery, he knows that without the moral and material support, as well as the experience which connection with a surgical clinic affords, he can not hope to compete with the specialist; and he generally has common prudence enough not to attempt anything that would make him appear ridiculous in the eyes of the profession if not to injure his standing with the laity. This is particularly true of the ex-hospital interne. His hospital experience has taught him to know when he does not know—has made him painfully aware of his shortcomings. It also generally discloses to him the line of work he would most like to pursue, and if that be in the direction of gynæcology, surely he may be pardoned if he attempt such operative procedures as he is confident of his ability to perform, and follow such lines of treatment as are sanctioned by gynæcologists generally. You would have him spend one or two of the best years of his life in hospital work, and then forbid him to put into practice the knowledge he has gained literally by the sweat of his brow and perhaps at the expense of his health. True, the general practitioner in doing gynæcological operations receives (perhaps greatly reduced) the fee which the specialist would otherwise receive. This is rank ingratitude. The specialist has such an overwhelming regard for the welfare of the struggling physician! With the increasing differentiation of medical practice in a large city into specialties, and the establishment of clinics by these selfsame specialists for lucrative purposes always, the lot of the city doctor is yearly becoming a harder one. If he can secure a compensation equal to that of a second-rate clerk he deems himself fortunate. With such clinics and many of the hospitals, large manufacturing con-

cerns frequently have contracts to take care of their injured, and many other patients who could well afford to pay for medical service resort to such institutions.

The man who wishes to be known as a specialist in internal medicine will not touch the knife. The oculist, the aurist, or the laryngologist, as a rule, confines himself to his specialty; but the well-established gynæcologist or surgeon, whose income runs into five figures yearly, will treat anything from a colicky infant to prescribing for a bald head. A visit to the consulting rooms of these men will show that this is not exaggeration. There are honorable exceptions, of course, but the exceptions merely prove the rule. To the indiscriminating and sensation-loving public the use of the surgeon's knife is synonymous with diagnostic acumen in all departments of medicine.

In conclusion, if gynæcologists and surgeons wish for a better support from the profession at large, and would have more consideration shown for their prerogatives of fat fees, let them observe the golden rule.

W. A. KIMMEL, M. D.,

*An Ex-interne not yet a Specialist.*

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## ITEM OF INTEREST.

### AMERICAN GYNÆCOLOGICAL SOCIETY.

Programme of the Twenty-first Annual Meeting, to be held in the Academy of Medicine, 17 West Forty-third Street, New York, May 26, 27, and 28, 1896.

*First Day.—Tuesday, May 26th.*

*Morning Session at 9.30 o'clock.*—Roll-call, reception of guests, etc. Address of welcome, by Dr. William T. Lusk, of New York.

*Papers.*—1. Virginal and Senile Endometritis, by Dr. Paul F. Mundé, of New York. 2. Liability to Prosecution for Damages in Abdominal Surgery, by Dr. Cyrus A. Kirkley, of Toledo, Ohio. 3. Gynæcology and General Medicine; their Reciprocal Relations, by Dr. Chauncey D. Palmer, of Cincinnati. 4. Woman and her Diseases *versus* Gynæcology, by Dr. Henry P. Newman, of Chicago.

*Afternoon Session at 3 o'clock.*—5. Aids in Obstetric Teaching, by Dr. J. Clifton Edgar, of New York. 6. Two Cases of Pregnancy following Removal of both Tubes and Ovaries, by Dr. S. C. Gordon, of Portland, Me. 7. Case of Double Ovariectomy followed by Preg-



nancy, by Dr. R. Stansbury Sutton, of Pittsburg. 8. Treatment of Intraligamentous and Retroperitoneal Uterine Fibromyomata, by Dr. William H. Wathen, of Louisville. 9. Treatment of Retrodisplacement of the Uterus, by Dr. Edward E. Montgomery, of Philadelphia.

*Second Day.—Wednesday, May 27th.*

*Morning Session at 9.30 o'clock.*—10. President's Address. 11. The Technique of Vaginal Hysterectomy, by Paul Ségond, of Paris, France. 12. Treatment of Extra-uterine Pregnancy, by Dr. Howard A. Kelly, of Baltimore. 13. Treatment of Early Rupture of Extra-uterine Pregnancy, by Dr. Fernand Henrotin, of Chicago. 14. Suspensio Uteri, with Reference to its Influence upon Pregnancy and Labor, by Dr. Charles P. Noble, of Philadelphia.

*Afternoon Session at 3 o'clock.*—15. The Relative Merits of Vaginal Hysterectomy by Ordinary Methods and Supravaginal Excision by Galvano-cautery, by Dr. John Byrne, of Brooklyn. 16. The Diagnosis and Treatment of Ureteritis in Women, by Dr. Edward P. Reynolds, of Boston. 17. Implantation of the Ureter in the Bladder, by Dr. Hermann J. Boldt, of New York. 18. Surgical Injuries of the Ureter, by Dr. J. Montgomery Baldy, of Philadelphia. Business meeting, with closed doors, at 5.30 P. M.

*Third Day.—Thursday, May 28th.*

*Morning Session at 9.30 o'clock.*—19. The Zoölogical Importance of the Menstrual Wave, by Dr. Arthur W. Johnstone, of Cincinnati. 20. Intestinal Bacteria as a Source of Infection complicating Obstetric Operations, with Report of Cases, by Dr. Edward P. Davis, of Philadelphia. 21. Drainage of the Stump in Abdominal Hysterectomy, by Dr. Henry T. Byford, of Chicago. 22. Myomectomy; Fatal Secondary Hæmorrhage with rising Temperature, by Dr. Henry D. Fry, of Washington.

*Afternoon Session at 3 o'clock.*—23. New Method of closing the Abdominal Wound, by Dr. E. C. Dudley, of Chicago. 24. Foreign Bodies in the Peritoneal Cavity, by Dr. Archibald MacLaren, of St. Paul. 25. Cæsarean Section; Hysterectomy *versus* Suture of the Uterus, by Dr. Henry C. Coe, of New York. 26. In Memoriam—Dr. Thomas Keith, by Dr. A. J. C. Skene, of Brooklyn. 27. In Memoriam—Dr. Robert Battey, by Dr. Thaddeus A. Reamy, of Cincinnati. 28. In Memoriam—Dr. W. W. Jaggard, by Dr. James H. Etheridge, of Chicago.

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